SLV-AX10/AX20/N50/N60/N70/N80/
LX4/LX5/LX6S/LX7S/LX8S
RMT-V266A/V266B/V292/V292A/V293/V294

SERVICE MANUAL

US Model

SLV-AX10/AX20/N50/N60/N70/N80

Canadian Model

SLV-N50/N60/N70/N80

Mexican Model

SLV-LX4/LX5/LX6S(MX)/
LX7S(MX)/LX8S(MX)

Chilean Model

SLV-LX5(CL,CS)/LX7S(CL,CS)/
LX8S(CS)

Panama Model

Venezuelan Model

SLV-LX5(PA,PC,VZ)/LX7S(PA,PC,VZ)

S MECHANISM

Photo : SLV-N80
RMT-V292

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT Ⅵ for MECHANICAL ADJUSTMENTS. (9-921-647-11)

HiFi model : SLV-AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S
Mono model : SLV-LX4/LX5

SPECIFICATIONS

System

Format
VHS NTSC standard
Video recording system
Rotary head helical scanning FM system
Video heads
Double azimuth four heads
Video signal
NTSC color, EIA standards
Tape speed
SP: 33.35 mm/s ($1\frac{3}{8}$ inches/s)
EP: 11.11 mm/s ($\frac{7}{16}$ inches/s)
LP: 16.67 mm/s ($\frac{11}{16}$ inches/s), playback only
Maximum recording/playback time
8 hrs. in EP mode (with T-160 tape) (SLV-AX10/AX20/N50/N60/N70/N80)
9 hrs. in EP mode (with T-180 tape) (SLV-LX4/LX5/LX6S/LX7S/LX8S)
Fast-forward and rewind time
Approx. 3 min. (with T-120 tape)

Tuner section

Channel coverage
VHF 2 to 13
UHF 14 to 69
CATV A-8 to A-1, A to W, W+1 to W+84
Antenna
75-ohm antenna terminal for VHF/UHF

Inputs and outputs

LINE-1 IN and -2 IN
VIDEO IN, phono jack (1 each)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, phono jacks (2 each) (SLV-AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S)
AUDIO IN, phono jack (1 each) (SLV-LX4/LX5)
Input level: 327 mVrms
Input impedance: more than 47 kilohms
LINE OUT
VIDEO OUT, phono jack (1)
Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO OUT, phono jacks (2) (SLV-AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S)
AUDIO OUT, phono jack (1) (SLV-LX4/LX5)
Standard output: 327 mVrms
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms
S-LINK (CONTROL S IN) (SLV-N80 only)
Mini jack (1)
CABLE BOX CONTROL (CONTROL S OUT) (SLV-N80 only)
Stereo mini jack (plug in power) (1)

Timer section

Clock
Quartz locked
Timer indication
12-hour cycle
Timer setting
8 programs (max.)
Power back-up
Built-in self-charging capacitor
Back-up duration: up to 1 hour at a time

General

Power requirements
120 V AC, 60 Hz (SLV-AX10/AX20/N50/N60/N70/N80/LX4(MX)/LX5(MX,PA,PC,VZ)/LX6S/LX7S(MX,PA,PC,VZ)/LX8S(MX))
110 V AC – 240 V AC, 50/60 Hz (SLV-LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))
Power consumption
24 W (SLV-AX10/AX20/N50/N60/N70/N80)
18 W (SLV-LX4/LX5/LX6S/LX7S/LX8S)
Operating temperature
5°C to 40°C (41°F to 104°F)
Storage temperature
–20°C to 60°C (–4°F to 140°F)
Dimensions
Approx. 430 × 97 × 290.5 mm (w/h/d) (Approx. 17 × 3 $\frac{7}{8}$ × 11 $\frac{1}{2}$ inches) including (SLV-N70/N80/LX8S)
Approx. 355 × 96 × 285 mm (w/h/d) (Approx. 14 × 3 $\frac{7}{8}$ × 11 $\frac{1}{4}$ inches) including (SLV-AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S) projecting parts and controls
Mass
Approx. 4.1 kg (9 lb 1 oz) (SLV-N70/N80/LX8S)
Approx. 3.6 kg (7 lb 15 oz) (SLV-AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)

Supplied accessories

Remote commander (1)
Size AA (R6) batteries (2)
75-ohm coaxial cable with F-type connectors (1)
Audio/video cable (3-phono, 1-mini to 3-phono, 1-mini) (1) (SLV-N80 only)
Audio/video cable (3-phono to 3-phono) (1) (SLV-N70 only)

Design and specifications are subject to change without notice.

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As an ENERGY STAR® Partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

VIDEO CASSETTE RECORDER

MICROFILM

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion.
   Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

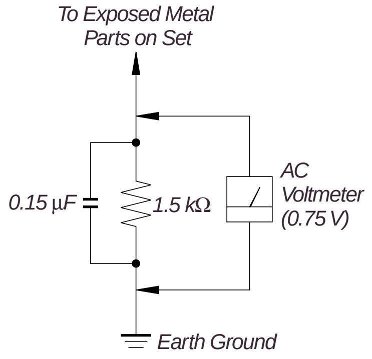

Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA TW-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

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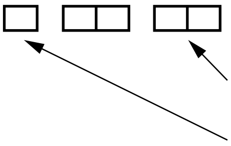
SERVICE NOTE

1. ERROR CODE INDICATION

- Error codes are indicated using the lower 5 digits in the fluorescent display tube.
  “At this time, Colon “:” between character is not indicated.”



Mode code indication when the error has occurred.

Error code

ERROR CODE

0	No error
1	Cam encoder error Loading direction
2	Cam encoder error Unloading direction
3	T reel error
4	S reel error
5	Capstan error
6	Drum error
7	Error on initializing
8	Cassette loading error
9	Reserve

MODE CODE

0	Power-on eject	10	FWD x1	20	REW play
1	Power-on initial	11	FWD x2	21	Cas. loading
2	Power-off eject	12	CUE	22	Tape loading
3	Power-off stop	13	PB-pause	23	Power-off loading
4	FF	14	RVS-pause	24	Mecha. error (Power on)
5	REW	15	RVS x1	25	Power-on eject initial
6	REC	16	RVS x2	26	Power-off eject initial
7	REC- pause	17	REV	27	APC REC
8	Power-on stop	18	Power-off initial	28	Cas. loading (No auto PB check)
9	PB	19	Mecha. error (Power off)		

MEMO

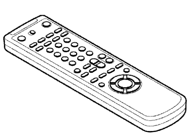
SECTION 1
GENERAL

This section is extracted from instruction manual. (SLV-N70/N80 model)

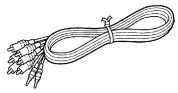
Step 1 : Unpacking

Check that you have received the following items with the VCR:

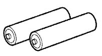
- Remote commander



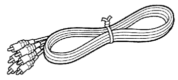
- Audio/video cable (3-phono, 1-mini to 3-phono, 1-mini) (SLV-N80 only)



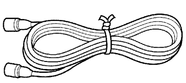
- Size AA (R6) batteries



- Audio/video cable (3-phono to 3-phono) (SLV-N70 only)



- 75-ohm coaxial cable with F-type connectors



Check your model name

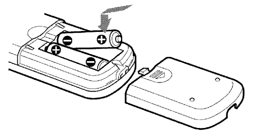
The instructions in this manual are for the 2 models: SLV-N80 and N70. Check your model number by looking at the rear panel of your VCR. SLV-N80 is the model used for illustration purposes. Any difference in operation is clearly indicated in the text, for example, "SLV-N70 only."

Step 2 : Setting up the remote commander

Inserting the batteries

Insert two size AA (R6) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

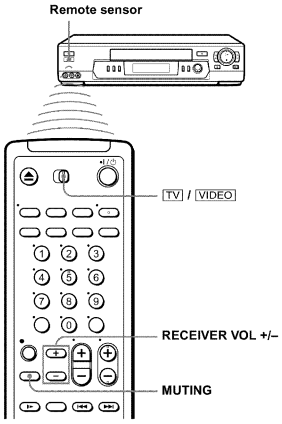
Insert the negative (–) end first, then push in and down until the positive (+) end clicks into position.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV and/or AV receiver. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV.

The RECEIVER VOL +/– and MUTING buttons can be used to operate your Sony AV receiver.



To operate	Set TV / VIDEO to
the VCR	VIDEO and point at the remote sensor at the VCR
a Sony TV	TV and point at the remote sensor at the TV

continued

Notes

- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.
- You do not need to move the TV / VIDEO switch when operating your AV receiver.
- Some Sony AV receivers may not operate with this remote commander.

Controlling other TVs and/or AV receivers with the remote commander

The remote commander is preprogrammed to control non-Sony TVs and/or AV receivers. If your TV and/or AV receiver is listed in the following table, set the appropriate manufacturer's code number.

1. Set TV / VIDEO at the top of the remote commander to TV.
2. Hold down I/⏻, and enter your TV's code number using the number buttons. Then release I/⏻.
3. Next, hold down I/⏻, and enter your AV receiver's code number using the number buttons. Then release I/⏻.

Now you can use the I/⏻, VOL +/–, CH +/–, and TV/VIDEO buttons to control your TV. You can also use the buttons marked with a dot (•) to control a Sony TV. You can use the RECEIVER VOL +/– and MUTING buttons to control your AV receiver. To control the VCR, reset TV / VIDEO to VIDEO.

Code numbers of controllable TVs and AV receivers

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV and/or AV receiver.

TV brand	Code number
Sony	01
Akai	04
AOC	04
Centurion	12
Coronado	03
Curtis-Mathes	12
Daytron	12
Emerson	03, 04, 14
Fisher	11
General Electric	06, 10
Gold Star	03, 04, 17
Hitachi	02, 03
J.C.Penney	04, 12
JVC	09
KMC	03
Magnavox	03, 08, 12
Marantz	04, 13
MGA/Mitsubishi	04, 12, 13, 17
NEC	04, 12

TV brand	Code number
Panasonic	06, 19
Philco	03, 04
Philips	08
Pioneer	16
Portland	03
Quasar	06, 18
Radio Shack	05, 14
RCA	04, 10
Sampo	12
Sanyo	11
Scott	12
Sears	07, 10, 11
Sharp	03, 05, 18
Sylvania	08, 12
Teknika	03, 08, 14
Toshiba	07
Wards	03, 04, 12
Yorx	12
Zenith	15

AV receiver brand	Code number
Sony	88, 89, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

Notes

- If you enter a new code number, the code number previously entered will be erased. Be sure to enter your TV's code number correctly before you enter your AV receiver's code number.
- If the TV and/or AV receiver uses a different remote control system from the one programmed to work with the VCR, you cannot control your TV and/or AV receiver with the remote commander.
- When you replace the batteries of the remote commander, the code number may change. Set the appropriate code number every time you replace the batteries.
- When you press the AUDIO MONITOR button, your TV's menu may appear on the TV screen. To exit the TV menu, press the MENU button on the TV remote commander or wait until the menu disappears automatically.

Step 3 : Hookups

Selecting the best hookup option

There are many ways in which your VCR can be hooked up. To hook up your VCR so that it works best for you, first scan through the table below. Then use the accompanying diagrams and procedures on the following pages to set up your VCR.

If your TV has audio/video inputs, refer to pages 9 and 10 for audio/video (A/V) hookup. Then follow one of the hookups below. For hookup 1 or 2, use the Sony RM-CM101 Cable Mouse (cable box controller) (not supplied).

For SLV-N80 only

If you have	Use	Refer to
A cable box that is compatible with the Cable Mouse	**Hookup 1**	**Pages 11 to 13**
A digital broadcast service's digital satellite receiver that is compatible with the Cable Mouse	**Hookup 2**	**Pages 14 to 16**

For both SLV-N80 and N70

If you have	Use	Refer to
No cable box or cable box with only a few scrambled channels	**Hookup 3**	**Pages 17 to 19**
Antenna only, no cable TV	**Hookup 4**	**Pages 20 to 22**
Cable box with many scrambled channels	**Hookup 5**	**Pages 23 to 25**
Cable box with only a few scrambled channels and you are using an A/B switch	**Hookup 6**	**Pages 26 to 29**

After you've completed the connections, follow the instructions for setup. During setup, if you need more details on the procedure described, page numbers are provided where you can find complete, step-by-step instructions.

After you've completed the setup, you're ready to use your VCR. Procedures differ depending on the hookup you used. For an overview, refer to "Quick reference to using the VCR" on the back cover.

Before you get started

- Turn off the power to all equipment.
- Do not connect the AC power cords until all of the connections are completed.
- Be sure you make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, see your nearest Sony dealer or qualified technician.

Audio/video (A/V) hookup

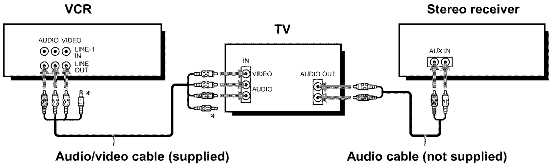
If your TV has audio/video (A/V) input jacks, you will get a better picture and sound if you hook up your VCR using these connections. For a true "home theater" experience, you should connect the audio outputs of your VCR or TV to your stereo system. If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookups.

If your TV has the S-Link™ (A/V bus control) function, hook up your VCR (SLV-N80 only) using the connection shown on page 10. Your TV will automatically switch to the A/V inputs for your VCR when you play back a tape or operate the VCR.

If you're not planning to use your VCR to record programs, you're finished setting up the VCR after you've made the connections shown on pages 9 and 10. If you want to record regular or cable TV programs, complete these connections first, and then go to the following pages for antenna or cable hookups.

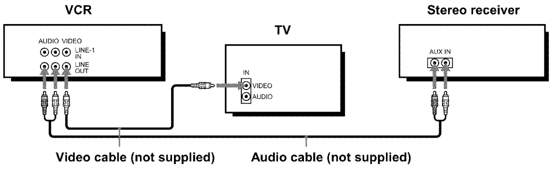
S-Link™ is a trademark of Sony Corporation.

A Use this hookup if your TV has stereo jacks


VCR
TV
Stereo receiver
AUDIO VIDEO
LINE-1 IN
LINE OUT
IN
VIDEO
AUDIO
AUDIO OUT
AUX IN
*
*
Audio/video cable (supplied)
Audio cable (not supplied)

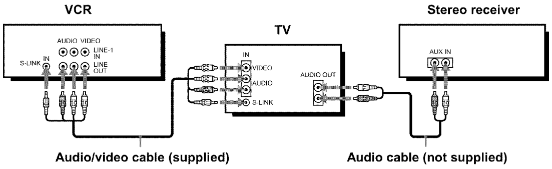
* Do not connect the fourth miniplug for this hookup (SLV-N80 only).

B Use this hookup if your TV doesn't have stereo jacks


VCR
TV
Stereo receiver
AUDIO VIDEO
LINE-1 IN
LINE OUT
IN
VIDEO
AUDIO
AUX IN
Video cable (not supplied)
Audio cable (not supplied)

continued

C Use this hookup if your TV has the S-Link™ function (SLV-N80 only)


VCR
TV
Stereo receiver
AUDIO VIDEO
S-LINK
IN
LINE-1 IN
LINE OUT
IN
VIDEO
AUDIO
S-LINK
AUDIO OUT
AUX IN
Audio/video cable (supplied)
Audio cable (not supplied)

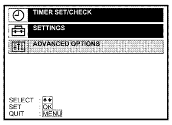
Note

- To play a tape in stereo, you must use the A/V connection.

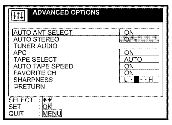
Completing A/V hookup:

After you've connected your TV and completed antenna or cable hookup, return to this procedure to complete VCR set up. This will prevent unwanted noise in the RF channel.

Press MENU and select ADVANCED OPTIONS.


TIMER SET/CHECK
SETTINGS
ADVANCED OPTIONS
SELECT : ▲▼
SET : OK
QUIT : MENU

Set AUTO ANT SELECT to OFF and press OK.


ADVANCED OPTIONS

AUTO ANT SELECT ON / OFF
AUTO STEREO
TUNER AUDIO
APC ON
TAPE SELECT AUTO
AUTO TAPE SPEED ON
FAVORITE CH ON
SHARPNESS L · ■ · · H
RETURN

SELECT : ▲▼
SET : OK
QUIT : MENU

For details, see page 97.

Caution

Connections between the VCR's VHF/UHF connector and the antenna terminals of the TV receiver should be made only as shown in the following instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the VCR to an antenna or make simultaneous (parallel) antenna and VCR connections at the antenna terminals of your receiver.

Note to CATV system installer (in USA)

This reminder is provided to call the CATV system installer's attention to Article 820- 40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Hookup 1 (SLV-N80 only)

Using the cable box control feature

Recommended use

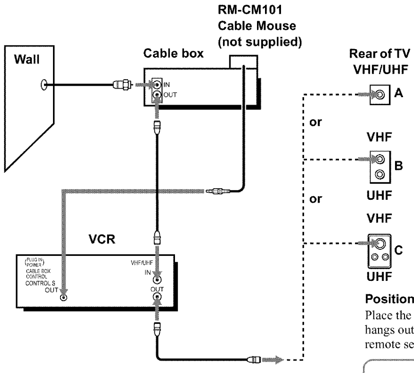
You should use this hookup if you have a cable box, especially if your cable system scrambles all or most channels. This hookup allows the VCR's cable box control feature to control the channels on the cable box, simplifying the recording process. A list of compatible cable boxes is on pages 40 and 41.

What you can do with this hookup

- Record any channel by using the Cable Mouse to select channels on the cable box

What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel

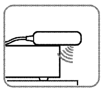

RM-CM101
Cable Mouse
(not supplied)
Wall
Cable box
IN
OUT
Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF
VCR
PLUG IN POWER
CABLE BOX CONTROL
CONTROL S
OUT
VHF/UHF
IN
OUT

Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Positioning the Cable Mouse

Place the Cable Mouse so that it hangs out over the front of the remote sensor on the cable box.

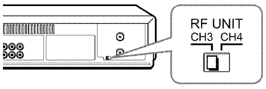


continued

Hookup 1 : VCR setup

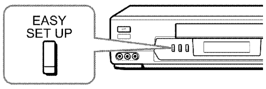
1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

If you made A/V connections (from page 9), you can skip this step.

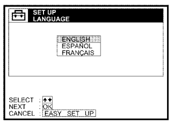


2 Turn on your cable box.

3 Press EASY SET UP on the VCR.



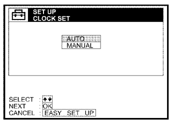
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE

ENGLISH
ESPAÑOL
FRANÇAIS

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

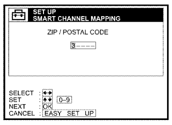
❷ The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 32.


SET UP
CLOCK SET

AUTO
MANUAL

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

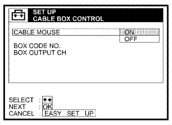
❸ The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)


SET UP
SMART CHANNEL MAPPING

ZIP / POSTAL CODE
3----

SELECT : ←→
SET : ↑↓ 0–9
NEXT : OK
CANCEL : EASY SET UP

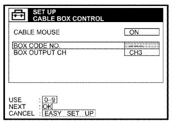
❹ The CABLE BOX CONTROL menu appears. Select ON. For details, see page 39.


SET UP
CABLE BOX CONTROL

CABLE MOUSE ON
OFF
BOX CODE NO.
BOX OUTPUT CH

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

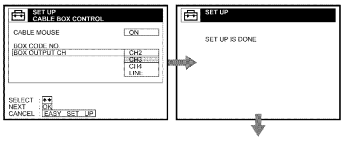
❺ Enter your cable box code number and press OK. For details, see page 39.


SET UP
CABLE BOX CONTROL

CABLE MOUSE ON
BOX CODE NO. ----
BOX OUTPUT CH CH3

USE : 0–9
NEXT : OK
CANCEL : EASY SET UP

❻ Select your cable box output channel and press OK.


SET UP
CABLE BOX CONTROL

CABLE MOUSE ON
BOX CODE NO.
BOX OUTPUT CH CH2
CH3
CH4
LINE

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

SET UP

SET UP IS DONE

Normal display

You have now completed hookup. If you want to use the VCR Plus+ GOLD system for recording, go to page 51 for VCR Plus+ GOLD system channel set up.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. "ACS" (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Notes

- To use the Auto Clock Set feature, leave the cable box on.
- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

Hookup 2 (SLV-N80 only)

Connecting to a digital satellite receiver

Recommended use

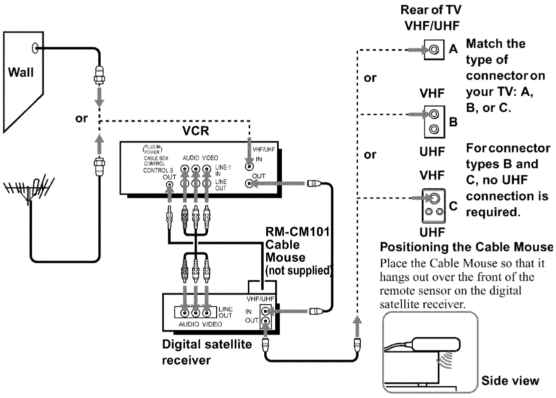
Use this hookup if you have a digital satellite receiver that is compatible with the Cable Mouse. It allows the VCR's cable box control feature to control the channel on the digital satellite receiver, simplifying the recording process. A list of compatible digital satellite receivers is on page 42.

What you can do with this hookup

- Record any channels by using the Cable Mouse to select channels on the digital satellite receiver

What you can't do

- Record with the digital satellite receiver turned off
- Record any channels from cable or an antenna (To record channels from cable or an antenna, turn off the cable box control feature.)
- Use a cable box
- Record programs with the VCR Plus+ GOLD system


Rear of TV
VHF/UHF
A
Match the type of connector on your TV: A, B, or C.
or
VHF
B
or
UHF
VHF
For connector types B and C, no UHF connection is required.
C
UHF
Wall
or
VCR
PLUG IN POWER
CABLE BOX CONTROL
CONTROL S OUT
AUDIO VIDEO
LINE-1 IN
LINE OUT
VHF/UHF
IN
OUT
RM-CM101 Cable Mouse (not supplied)
VHF/UHF
LINE OUT
AUDIO VIDEO
IN
OUT
Digital satellite receiver
Side view

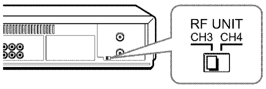
Positioning the Cable Mouse

Place the Cable Mouse so that it hangs out over the front of the remote sensor on the digital satellite receiver.

Hookup 2 : VCR setup

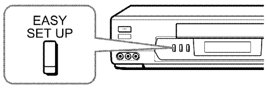
1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

If you made A/V connections (from page 9), you can skip this step.

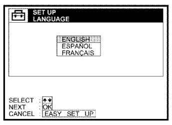


2 Turn on your digital satellite receiver.

3 Press EASY SET UP on the VCR.



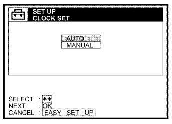
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE

ENGLISH
ESPAÑOL
FRANÇAIS

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

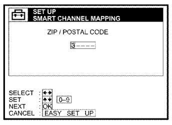
❷ The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 32.


SET UP
CLOCK SET

AUTO
MANUAL

SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❸ The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)

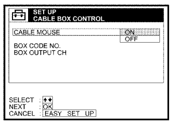

SET UP
SMART CHANNEL MAPPING

ZIP / POSTAL CODE
3----

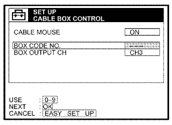
SELECT : ←→
SET : ↑↓ 0–9
NEXT : OK
CANCEL : EASY SET UP

continued

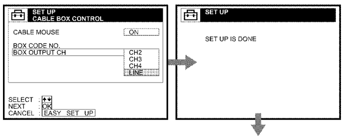
❹ The CABLE BOX CONTROL menu appears. Select ON. For details, see page 39.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
OFF
BOX CODE NO.
BOX OUTPUT CH
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❺ Enter your digital satellite receiver code number and press OK. For details, see page 39.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
BOX CODE NO.
BOX OUTPUT CH
CH3
USE : 0–9
NEXT : OK
CANCEL : EASY SET UP

❻ Set your digital satellite receiver output channel (BOX OUTPUT CH) to LINE and press OK.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
BOX CODE NO.
BOX OUTPUT CH
CH2
CH3
CH4
LINE
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP
SET UP
SET UP IS DONE

Normal display

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. "ACS" (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Notes

- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.
- To successfully record a program from the digital satellite receiver, proceed as follows:
  - Leave the digital satellite receiver on all the time.
  - Turn off the display (menu screen, channel number, etc.) of the digital satellite receiver.
  - To record or receive locked channels, unlock the channel before the VCR starts recording.
  - To set pay-per-view programs in the timer setting, order the pay-per-view program before the VCR starts recording.
  - Some programs are copy protected. You cannot record these programs.

Hookup 3

You have no cable box, or a cable box with only a few scrambled channels

Recommended use

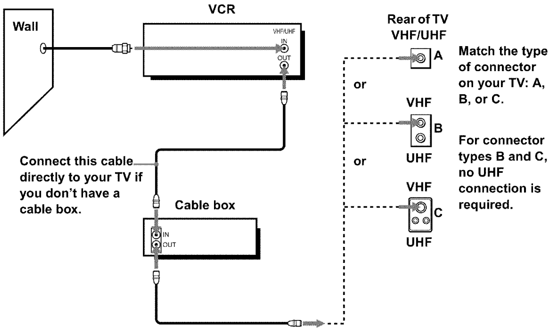
Use this hookup if you do not have a cable box. Also use this hookup if your cable system scrambles only a few channels.

What you can do with this hookup

- Record any unscrambled channel by selecting the channel on the VCR

What you can't do

- Record scrambled channels that require a cable box

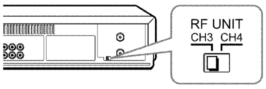

Wall
VCR
VHF/UHF
IN
OUT
Rear of TV
VHF/UHF
A
or
VHF
B
or
UHF
VHF
C
UHF
Match the type of connector on your TV: A, B, or C.
For connector types B and C, no UHF connection is required.
Connect this cable directly to your TV if you don't have a cable box.
Cable box
IN
OUT

continued

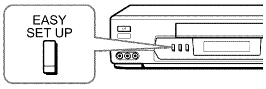
Hookup 3 : VCR setup

1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

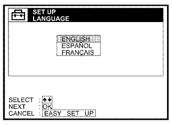
If you made A/V connections (from page 9), you can skip this step.


RF UNIT
CH3 CH4

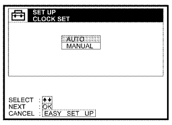
2 Press EASY SET UP on the VCR.



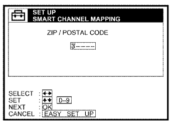
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE
ENGLISH
ESPAÑOL
FRANÇAIS
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

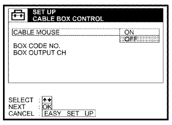
❷ The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 32.


SET UP
CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

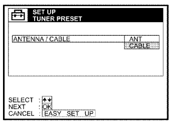
❸ (For SLV-N80 only)
The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)


SET UP
SMART CHANNEL MAPPING
ZIP / POSTAL CODE
SELECT : ↑↓
SET : ←→ 0–9
NEXT : OK
CANCEL : EASY SET UP

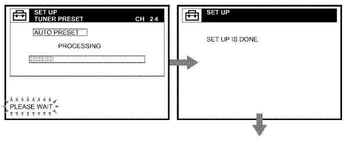
❹ (For SLV-N80 only)
The CABLE BOX CONTROL menu appears. Select OFF and press OK.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
OFF
BOX CODE NO.
BOX OUTPUT CH
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❺ The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press OK. For details, see page 45.


SET UP
TUNER PRESET
ANTENNA / CABLE
ANT
CABLE
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❻ The AUTO PRESET starts.


SET UP
TUNER PRESET
CH 24
AUTO PRESET
PROCESSING
PLEASE WAIT
SET UP
SET UP IS DONE

Normal display

You have now completed hookup. If you want to use the VCR Plus+ or VCR Plus+ GOLD system for recording, go to the page listed below.

For SLV-N80: Go to page 51 for VCR Plus+ GOLD system channel set up.

For SLV-N70: Go to page 58 for VCR Plus+ system channel set up.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. "ACS" (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Note

- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

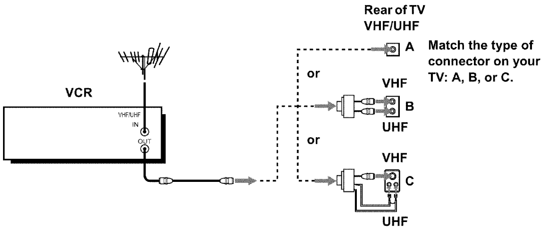
Hookup 4

Antenna hookup

Make the following connections if you're using an antenna (if you don't have cable TV).

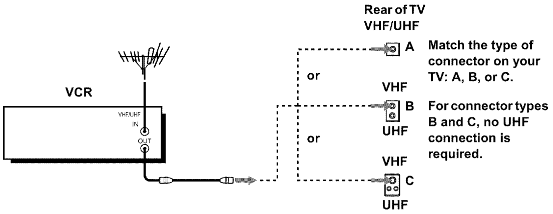
A Use this hookup if you're using:

- VHF/UHF antenna (you get channels 2–13 and channels 14 and higher)
- UHF-only antenna (you get channels 14 and higher)
- Separate VHF and UHF antennas


Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF
VCR
VHF/UHF
IN
OUT

Match the type of connector on your TV: A, B, or C.

B Use this hookup if you're using a VHF-only antenna (you get channels 2–13 only)


Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF
VCR
VHF/UHF
IN
OUT

Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

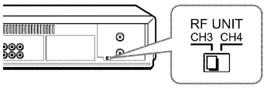
If you cannot connect your antenna cable to the VCR directly

If your antenna cable is a flat cable (300-ohm twin lead cable), attach an external antenna connector (not supplied) so you can connect the cable to the VHF/UHF IN connector. If you have separate cables for VHF and UHF antennas, you should use a U/V band mixer (not supplied). For details, see page 102.

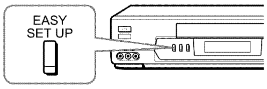
Hookup 4 : VCR setup

1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

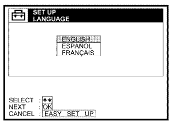
If you made A/V connections (from page 9), you can skip this step.


RF UNIT
CH3 CH4

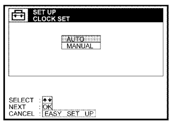
2 Press EASY SET UP on the VCR.



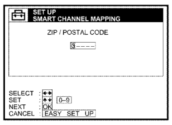
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE
ENGLISH
ESPAÑOL
FRANÇAIS
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❷ The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 32.

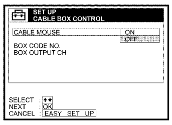

SET UP
CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❸ (For SLV-N80 only)
The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)

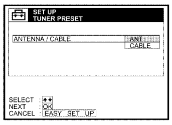

SET UP
SMART CHANNEL MAPPING
ZIP / POSTAL CODE
3- - - -
SELECT : ←→
SET : ↑↓ 0–9
NEXT : OK
CANCEL : EASY SET UP

continued

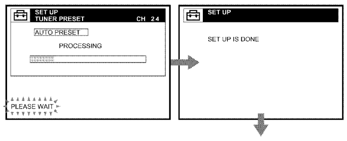
❹ (For SLV-N80 only)
The CABLE BOX CONTROL menu appears. Select OFF and press OK.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
OFF
BOX CODE NO.
BOX OUTPUT CH
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❺ The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press OK. For details, see page 45.


SET UP
TUNER PRESET
ANTENNA / CABLE
ANT
CABLE
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❻ The AUTO PRESET starts.


SET UP
TUNER PRESET CH 24
AUTO PRESET
PROCESSING
PLEASE WAIT
SET UP
SET UP IS DONE

Normal display

You have now completed hookup. If you want to use the VCR Plus+ or VCR Plus+ GOLD system for recording, go to the page listed below.

For SLV-N80: Go to page 51 for VCR Plus+ GOLD system channel set up.

For SLV-N70: Go to page 58 for VCR Plus+ system channel set up.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. "ACS" (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Note

- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

Hookup 5

Connecting a cable box with many scrambled channels

Recommended use

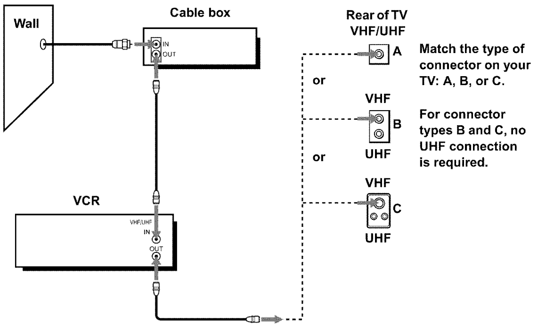
Use this hookup if your cable system scrambles all or most channels.

What you can do with this hookup

- Record any channel by selecting the channel on the cable box

What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel


Wall
Cable box
IN
OUT
Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF
VCR
VHF/UHF
IN
OUT

Match the type of connector on your TV: A, B, or C.

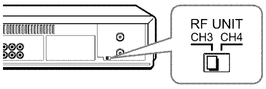
For connector types B and C, no UHF connection is required.

continued

Hookup 5 : VCR setup

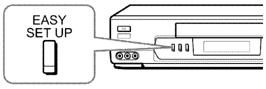
1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

If you made A/V connections (from page 9), you can skip this step.

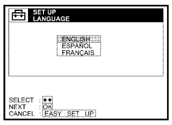

RF UNIT
CH3 CH4

2 Turn on your cable box.

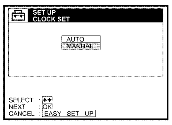
3 Press EASY SET UP on the VCR.



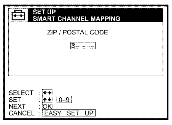
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE
ENGLISH
ESPAÑOL
FRANÇAIS
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

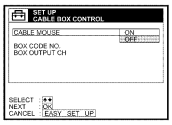
❷ The CLOCK SET menu appears. Select MANUAL and press OK. Then set the clock manually and press OK. For details, see page 37.


SET UP
CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

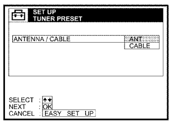
❸ (For SLV-N80 only)
The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)


SET UP
SMART CHANNEL MAPPING
ZIP / POSTAL CODE
3----
SELECT : ←→
SET : ↑↓ 0~9
NEXT : OK
CANCEL : EASY SET UP

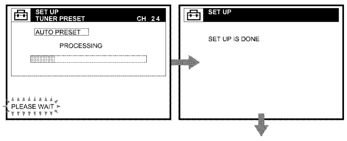
❹ (For SLV-N80 only)
The CABLE BOX CONTROL menu appears. Select OFF and press OK.


SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
OFF
BOX CODE NO.
BOX OUTPUT CH
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❺ The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press OK. For details, see page 45.


SET UP
TUNER PRESET
ANTENNA / CABLE
ANT
CABLE
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❻ The AUTO PRESET starts.


SET UP
TUNER PRESET CH 24
AUTO PRESET
PROCESSING
PLEASE WAIT
SET UP
SET UP IS DONE

Normal display

You have now completed hookup. If you want to use the VCR Plus+ or VCR Plus+ GOLD system for recording, go to the pages listed below.

For SLV-N80: Find the VCR Plus+ GOLD system Channel Listing in your program guide. For details, see page 51. Then enter all channels you want to record and the cable box output channel (usually 2, 3, or 4) as described on page 55.

For SLV-N70: Go to page 58 for VCR Plus+ system channel set up.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. “ACS” (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

To use the Auto Clock Set feature with this hookup, you need to manually select a channel that carries a time signal:

1 Tune the cable box to a channel that carries a time signal.

2 Select AUTO in the CLOCK SET menu to turn on the Auto Clock Set feature.

3 Turn off the VCR. It automatically sets the clock and adjusts for Daylight Saving Time by picking up the time signal.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Notes

- To use the Auto Clock Set feature, leave the cable box on.
- If the clock is not set, “ACS” will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

Hookup 6

Connecting a cable box with only a few scrambled channels, using an A/B switch

Recommended use

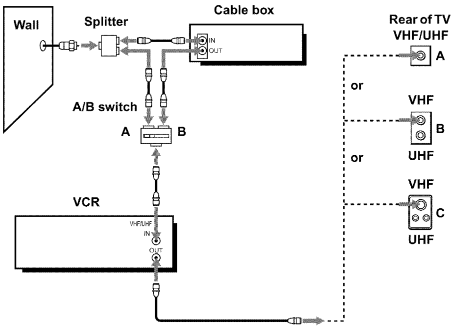
By using an A/B switch (not supplied), this hookup allows you to record both scrambled and unscrambled channels conveniently.

What you can do with this hookup

- Record any unscrambled channel by selecting the channel directly on the VCR (the A/B switch is set to A)
- Record any scrambled channel by selecting the channel on the cable box (the A/B switch is set to B)

What you can't do

- Record one scrambled channel while watching another channel (the A/B switch is set to B)


Wall
Splitter
Cable box
IN
OUT
A/B switch
A
B
VCR
VHF/UHF
IN
OUT
Rear of TV
VHF/UHF
A
or
VHF
B
UHF
or
VHF
C
UHF

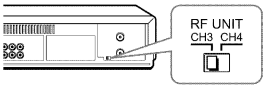
Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Hookup 6 : VCR setup

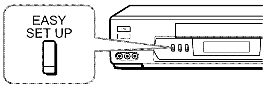
1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 101.

If you made A/V connections (from page 9), you can skip this step.

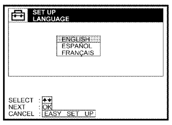

RF UNIT
CH3 CH4

2 Set the A/B switch to “A.”

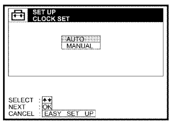
3 Press EASY SET UP on the VCR.



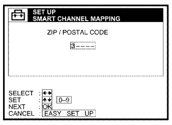
❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 30.


SET UP
LANGUAGE
ENGLISH
ESPAÑOL
FRANÇAIS
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

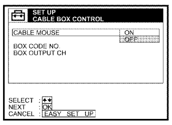
❷ The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 32.


SET UP
CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

❸ (For SLV-N80 only)
The SMART CHANNEL MAPPING menu appears. Press ↑/↓/←/→ to enter the ZIP/POSTAL CODE in your area and press OK. (You can also use the number buttons to enter the ZIP/POSTAL CODE.)

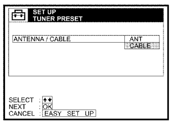

SET UP
SMART CHANNEL MAPPING
ZIP / POSTAL CODE
3----
SELECT : ←→
SET : ↑↓ 0~9
NEXT : OK
CANCEL : EASY SET UP

❹ (For SLV-N80 only)
The CABLE BOX CONTROL menu appears. Select OFF and press OK.

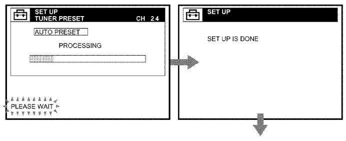

SET UP
CABLE BOX CONTROL
CABLE MOUSE
ON
OFF
BOX CODE NO.
BOX OUTPUT CH
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

continued

❺ The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press OK. For details, see page 45.


SET UP
TUNER PRESET
ANTENNA / CABLE
ANT
CABLE
SELECT : ↑↓
NEXT : OK
CANCEL : EASY SET UP

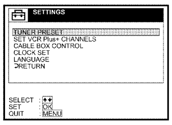
❻ The AUTO PRESET starts.


SET UP
TUNER PRESET
CH 24
AUTO PRESET
PROCESSING
PLEASE WAIT
SET UP
SET UP IS DONE

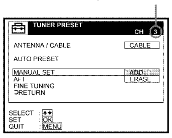
Normal display

4 Preset the cable box output channel (usually 2, 3 or 4). For details, see page 47.

❶ Press MENU, then select SETTINGS and press OK.
❷ Select TUNER PRESET and press OK.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

❸ Enter the cable box output channel.
❹ Set MANUAL SET to ADD and press OK.


Cable box output channel
TUNER PRESET
CH 3
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
ERASE
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

❺ Press MENU to exit the menu.

You have now completed hookup. If you want to use the VCR Plus+ or VCR Plus+ GOLD system for recording, go to the pages listed below.

For SLV-N80: Set the A/B switch to A and go to page 51 for automatic VCR Plus+ GOLD system channel set up. Go to page 55 for setting up scrambled channels.

For SLV-N70: Set the A/B switch to A and go to page 58 for VCR Plus+ system channel set up.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. "ACS" (Auto Clock Set) will flash in the display window and search for a time signal provided by some TV channels. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time.

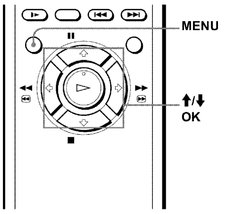
If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 36.

Notes

- To use the Auto Clock Set feature, set the A/B switch to "A."
- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

Selecting a language

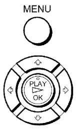
You can change the on-screen display language.



Before you start…

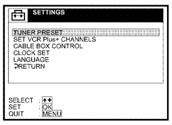
- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.

1


MENU
PLAY
OK

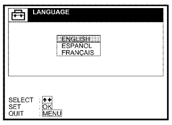
Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

2

Press ↑/↓ to highlight LANGUAGE, then press OK.


LANGUAGE
ENGLISH
ESPAÑOL
FRANÇAIS
SELECT : ↑↓
SET : OK
QUIT : MENU

3

Press ↑/↓ to highlight ENGLISH, ESPAÑOL, or FRANÇAIS, then press OK.

4

Press MENU to exit the menu.

Tip

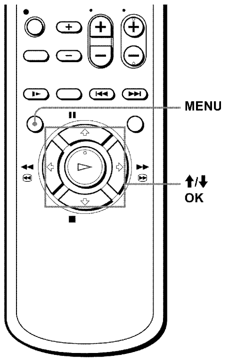
- If you want to return to the previous menu, highlight RETURN and press OK.

Setting the clock

Using the Auto Clock Set feature

Some TV and cable channels transmit time signals with their broadcasts. Your VCR can pick up this time signal to automatically set the clock.

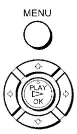
The Auto Clock Set feature works only if a channel in your area is broadcasting a time signal. If broadcasters in your area are not yet sending time signals, set the time manually (page 36).



Before you start…

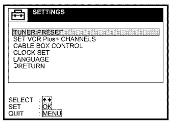
- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.

1


MENU
PLAY
OK

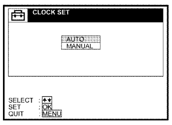
Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

2

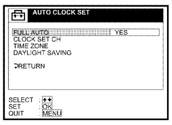
Press ↑/↓ to highlight CLOCK SET, then press OK.


CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
SET : OK
QUIT : MENU

continued

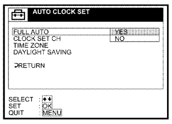
3

Press ↑/↓ to highlight AUTO, then press OK.


AUTO CLOCK SET
FULL AUTO YES
CLOCK SET CH
TIME ZONE
DAYLIGHT SAVING
↩RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

4

Press ↑/↓ to highlight FULL AUTO, then press OK.


AUTO CLOCK SET
FULL AUTO YES
CLOCK SET CH NO
TIME ZONE
DAYLIGHT SAVING
↩RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

5

Press ↑/↓ to highlight YES, then press OK.

6

Press MENU to exit the menu.

7

To activate the Auto Clock Set function, turn off the VCR. "ACS" will flash in the display window.

The VCR automatically sets the clock by searching for a channel that carries a time signal and sets your time zone and Daylight Saving Time (if applicable).

If your clock is set to the wrong time zone or Daylight Saving Time, you can adjust these settings without turning off the Auto Clock Set feature (page 33).

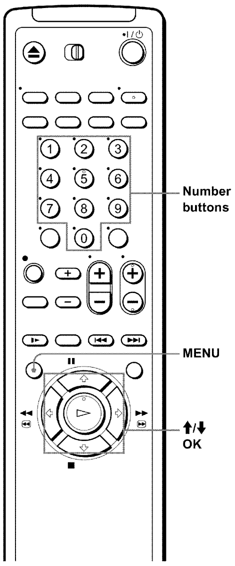
Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Notes

- The clock cannot be set automatically if you don't receive a channel that carries a time signal in your area. If so, set the clock manually (see page 36).
- If there are only a few channels in your area that carry time signals, setting the clock automatically may take up to about 30 minutes. If nothing happens even after you wait about 30 minutes, set the clock manually.
- If you use Hookup 1 or 5, make sure you leave the cable box on.
- If the clock is not set, "ACS" will flash in the display window whenever the VCR is turned off. During this time, the VCR will search for a time signal.

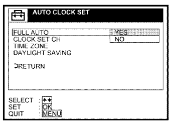
If the clock does not activate



1

Follow steps 1 to 4 in "Using the Auto Clock Set feature."

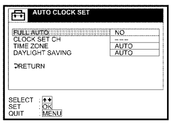
The AUTO CLOCK SET menu is displayed.


AUTO CLOCK SET
FULL AUTO YES
CLOCK SET CH NO
TIME ZONE
DAYLIGHT SAVING
↩RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

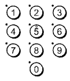
continued

2

Press ↑/↓ to highlight NO for FULL AUTO and press OK.

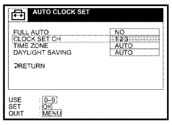

AUTO CLOCK SET
FULL AUTO NO
CLOCK SET CH – – –
TIME ZONE AUTO
DAYLIGHT SAVING AUTO
↩RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

3

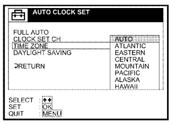


Press ↑/↓ to highlight the item you want to set and press OK. Then press ↑/↓ to make the setting and press OK.

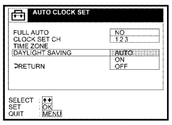
- For CLOCK SET CH
  Leave the setting to "– – –" to have the VCR automatically search for a channel that carries a time signal. Press the number buttons to select a channel that carries a time signal. Use this option if you know of a channel that carries a time signal. Most PBS member stations broadcast a time signal. For the fastest response, select your local PBS station.


AUTO CLOCK SET
FULL AUTO NO
CLOCK SET CH 1 2 3
TIME ZONE AUTO
DAYLIGHT SAVING AUTO
↩RETURN
USE : 0~9
SET : OK
QUIT : MENU

- For TIME ZONE
  Select the time zone of your area, or select AUTO to have the VCR automatically set your time zone.
  The options are:
  AUTO ←→ ATLANTIC ←→ EASTERN ←→ CENTRAL ←→ MOUNTAIN ←→ PACIFIC ←→ ALASKA ←→ HAWAII ←→ AUTO


AUTO CLOCK SET
FULL AUTO
CLOCK SET CH AUTO
TIME ZONE ATLANTIC
DAYLIGHT SAVING EASTERN
CENTRAL
↩RETURN MOUNTAIN
PACIFIC
ALASKA
HAWAII
SELECT : ↑↓
SET : OK
QUIT : MENU

- For DAYLIGHT SAVING
  Select ON or OFF (standard time), or AUTO to have the VCR automatically set the daylight saving time.


AUTO CLOCK SET
FULL AUTO NO
CLOCK SET CH 1 2 3
TIME ZONE
DAYLIGHT SAVING AUTO
ON
↩RETURN OFF
SELECT : ↑↓
SET : OK
QUIT : MENU

4

Press MENU to exit the menu.

5

To activate the Auto Clock Set function, turn off the VCR. "ACS" will flash in the display window.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Note

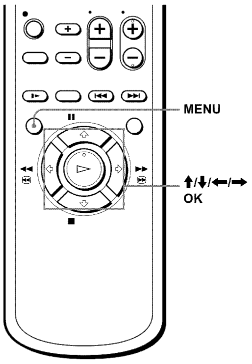
- (SLV-N80 only)
  If you use both the cable box control feature and the Auto Clock Set feature, the VCR automatically changes channels on the cable box until a channel that carries a time signal is found whenever you turn off the VCR.
  If you want to stop the search, change the channel on the cable box with the channel buttons either on the VCR or on the remote commander.

continued

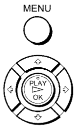
Using Manual Clock Set

Before you start…

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.

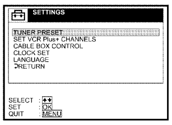


1


MENU
PLAY
OK

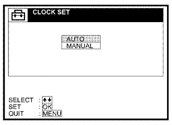
Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

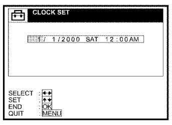
2

Press ↑/↓ to highlight CLOCK SET, then press OK.


CLOCK SET
AUTO
MANUAL
SELECT : ↑↓
SET : OK
QUIT : MENU

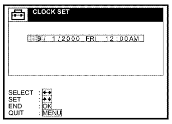
3

Press ↑/↓ to highlight MANUAL, then press OK.


CLOCK SET
1/ 1/2000 SAT 12:00AM
SELECT : ←→
SET : ↑↓
END : OK
QUIT : MENU

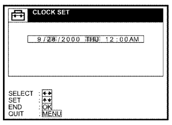
4

Press ↑/↓ to set the month.


CLOCK SET
9/ 1/2000 FRI 12:00AM
SELECT : ←→
SET : ↑↓
END : OK
QUIT : MENU

5

Press → to highlight the day and press ↑/↓ to set the day.


CLOCK SET
9/28/2000 THU 12:00AM
SELECT : ←→
SET : ↑↓
END : OK
QUIT : MENU

6

Set the year, hour, and minutes in the same way as the day.

The day of the week is set automatically.

7

Press OK to start the clock.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

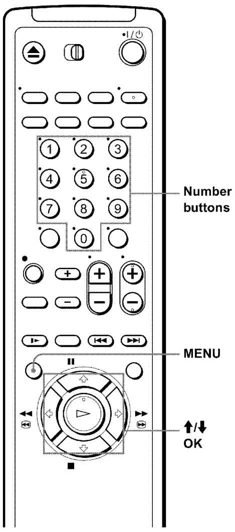
Getting Started

Setting up the cable box control (SLV-N80 only)

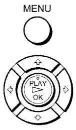
(Skip this section if you are using Hookup 3, 4, 5, or 6.)

Your VCR includes a cable box control feature that allows the VCR to control most brands of cable boxes or digital satellite receivers via an optional Cable Mouse. With the cable box control, the VCR controls channels on the cable box or digital satellite receiver for timer recording. You can also use the VCR's remote commander to change channels on the cable box or digital satellite receiver whenever the cable box or digital satellite receiver is turned on even if the VCR is turned off. To use cable box control, you need to connect the Sony RM-CM101 Cable Mouse (not supplied) (pages 11 and 14) and set the code number and output channel.

This VCR is programmed with codes necessary to control channel selection on most brands of cable boxes or digital satellite receivers at the time this VCR was manufactured. It is possible that new cable boxes may be introduced that cannot be controlled with the RM-CM101 Cable Mouse. If you have a cable box that is incompatible with this VCR, contact your cable operator — they may be able to provide you with a compatible cable box.

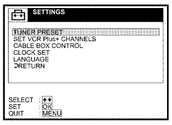

Number buttons
MENU
↑/↓
OK

1


MENU
PLAY
OK

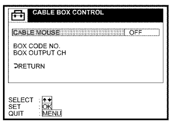
Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

2

Press ↑/↓ to highlight CABLE BOX CONTROL, then press OK.

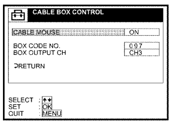

CABLE BOX CONTROL
CABLE MOUSE OFF
BOX CODE NO.
BOX OUTPUT CH
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

3

Press ↑/↓ to highlight CABLE MOUSE, then press OK.

4

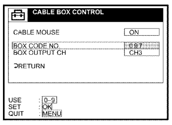
Press ↑/↓ to highlight ON, then press OK.


CABLE BOX CONTROL
CABLE MOUSE ON
BOX CODE NO. 097
BOX OUTPUT CH CH3
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

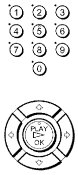
5

Press ↑/↓ to highlight BOX CODE NO., then press OK.

When BOX CODE NO. is "– – –," skip this step.

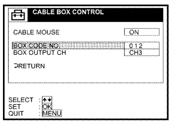

CABLE BOX CONTROL
CABLE MOUSE ON
BOX CODE NO. 097
BOX OUTPUT CH CH3
RETURN
USE : 0–9
SET : OK
QUIT : MENU

6


1 2 3
4 5 6
7 8 9
0
PLAY
OK

Press the number buttons to enter the cable box or digital satellite receiver code number, then press OK.

Find your cable box or digital satellite receiver code number from the following chart.

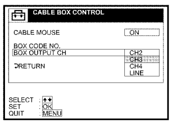

CABLE BOX CONTROL
CABLE MOUSE ON
BOX CODE NO. 012
BOX OUTPUT CH CH3
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

Getting Started

continued

7

Press ↑/↓ to highlight BOX OUTPUT CH, then press OK.



8

If you want to control a cable box, press ↑/↓ to highlight the cable box output channel, then press OK.

If you want to control a digital satellite receiver, select LINE, then press OK.

9 MENU

Press MENU to exit the menu.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Cable box and digital satellite receiver brands and the corresponding code numbers

If more than one code number is listed, try entering them one by one until you come to the correct code for your equipment.

Cable box brand	Code numbers
ABC	018, 022, 024, 028, 217
Antronix	218
Archer	033, 050, 164, 218, 808
BBT	278
Cable Star	067
Cabletenna	033
Cable time	172, 388, 459
Century	164
Citizen	164, 326, 327
Clyde Cablevision	097
Colour Voice	036, 042
Comband	243, 244
Comtronics	051, 071
Decsat	434

Cable box brand	Code numbers
Diamond	046
Eagle Comtronics	051
Eastern	013, 285
Electricord	089
Electus	055
Focus	411
Garrard	164
GC Electronics	027, 067, 341
GE	243, 244
GEC	097
Gemini	026, 068, 081
General Instrument	022, 287, 487
Hamlin	020, 031, 045, 270, 284
Hitachi	022
Jasco	164, 326

Cable box brand	Code numbers
Jerrold	014, 022, 025, 026, 035, 037, 058, 109, 287, 487
Linsay	451
Macom	044
Magnavox	038, 043, 080
Memorex	011
Movie Time	089, 167, 214
Northcoast	325
Novaplex	629
NSC	074, 081, 167, 214
Oak	018, 030, 259
Panasonic	032, 118
Paragon	011
Philips	036, 038, 039, 040, 041, 042, 071, 301
Pioneer	034, 155, 271, 544, 695
Popular Mechanics	411
Pulsar	011
Radio shack	808
RCA	032
Realistic	218
Recoton	411
Regal	031, 270, 284, 290
Regency	013
Rembrandt	081
Samsung	051, 155
Scientific Atlanta	017, 019, 028, 288
Seam	521
Sharp	324
Signal	051
Signature	022
SL Marx	051
Spectravision	069

Cable box brand	Code numbers
Sprucer	032, 318
Standard Components	107, 166
Starcom	014, 026, 058, 109
Stargate	026, 051
STS	167
Sylvania	012
T-Cable Teletext	116
Tandy	269
Tatung	108
Teknica	157
TeleCaption	232
Teleservice	292
Texscan	012, 107
TFC	321
Timeless	429
Tocom	023, 024
Toshiba	011
Tudi	297
TV86	074
TV COM	018, 030, 259
Uniden	236
Unika	033, 164, 218
United Artists	018
United Cable	014
Universal	033, 050, 067, 088, 089, 164, 202, 218, 333
Videoway	261
Vidtech	255
Viewstar	038, 071, 074, 122, 222, 269, 300
Zenith	011, 065, 536
Zentek	411
Wave Master	576

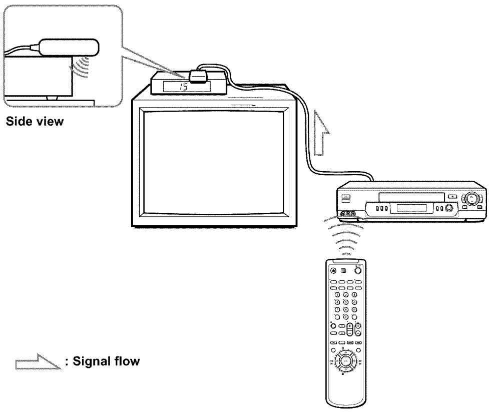
continued

Digital satellite receiver brand	Code numbers
Sony	650
Hitachi	830

Digital satellite receiver brand	Code numbers
RCA	577
Toshiba	801

To ensure correct operation

- Place the Cable Mouse so that it hangs out over the front of the remote sensor on the cable box or digital satellite receiver.
- Do not place the cable box or digital satellite receiver on top of the VCR.
- Position the cable box or digital satellite receiver away from the VCR.
- Point the remote commander at the VCR, not at the cable box or digital satellite receiver.



To check the cable box control setting

1. Press CH +/– on the remote commander. Does the channel indicator on the cable box or digital satellite receiver change? (Point the remote commander at the VCR, not at the cable box or digital satellite receiver.)
2. Press all 10 number buttons (0 to 9) on the remote commander. Does the channel indicator on the cable box or digital satellite receiver change?

If the answer to both 1 and 2 is “yes,” you have made the correct setting.

If you cannot get your VCR to control the cable box or digital satellite receiver

- Check that the Cable Mouse is connected to the CABLE BOX CONTROL jack on the VCR.
- Check the position of the Cable Mouse.
- Place the cable box or digital satellite receiver and VCR away from each other. Do not place the cable box or digital satellite receiver on top of the VCR.
- Try the setup again making sure to use the correct control code. If the cable box still does not respond, try the other codes that are listed.

If your cable box still does not operate with the Cable Mouse, contact your cable company to see if they can provide you with a compatible cable box.

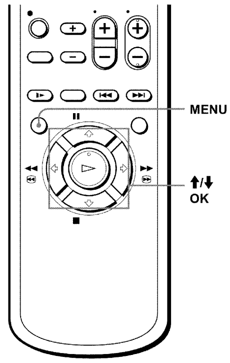
Note

- Make sure you turn off the VCR when you plug in or unplug the Cable Mouse. If you unplug the Cable Mouse and plug it in again, turn on the VCR before you use the cable box or digital satellite receiver control feature.

Presetting channels

(Skip this section if you are using a cable box or digital satellite receiver control.)

This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting methods. Then, if there are any unwanted channels, disable them manually. If you have already decided which channels you wish to preset, set them directly using manual presetting methods.

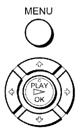


Before you start…

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.

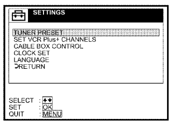
Presetting all receivable channels automatically

1



Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.

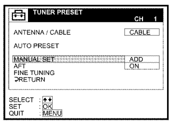


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

2

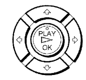
Press ↑/↓ to highlight TUNER PRESET, then press OK.



TUNER PRESET CH 1
ANTENNA / CABLE CABLE
AUTO PRESET
MANUAL SET ADD
AFT ON
FINE TUNING
RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

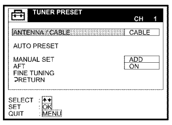
3



Press ↑/↓ to highlight ANTENNA/CABLE, then press OK.

4

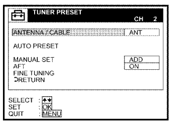
- To preset cable TV channels:
  Press ↑/↓ to set ANTENNA/CABLE to CABLE, then press OK.



TUNER PRESET CH 1
ANTENNA / CABLE CABLE
AUTO PRESET
MANUAL SET ADD
AFT ON
FINE TUNING
RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

- To preset VHF and UHF channels:
  Press ↑/↓ to set ANTENNA/CABLE to ANT, then press OK.



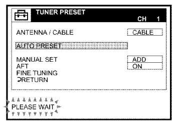
TUNER PRESET CH 2
ANTENNA / CABLE ANT
AUTO PRESET
MANUAL SET ADD
AFT ON
FINE TUNING
RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

5

Press ↑/↓ to highlight AUTO PRESET, then press OK.

All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.



TUNER PRESET CH 1
ANTENNA / CABLE CABLE
AUTO PRESET
MANUAL SET ADD
AFT ON
FINE TUNING
RETURN

PLEASE WAIT

continued

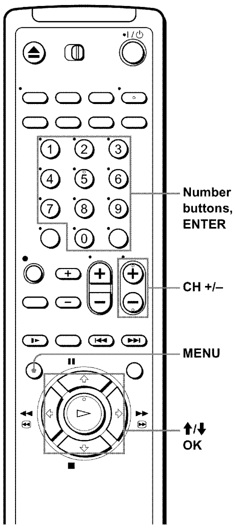
Tips

- When receiving a VHF, UHF, or CATV channel, the display changes as follows each time you press DISPLAY.

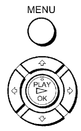
Channel number, program name, and station's call letters (for SLV-N80 only)
↓
Remaining tape length and time counter
↓
The bar indicator and pointer for searching for a specific place on a tape
↓
No display

- If you want to return to the previous menu, highlight RETURN and press OK.

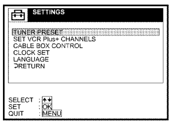
Presetting/disabling channels manually



1



Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

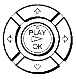


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN

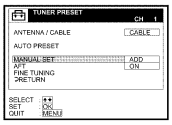
SELECT : ↑↓
SET : OK
QUIT : MENU

continued

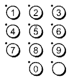
2



Press ↑/↓ to highlight TUNER PRESET, then press OK.


TUNER PRESET
CH 1
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
ON
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

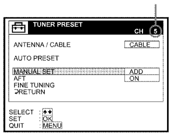
3

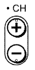

1
2
3
4
5
6
7
8
9
0

- To preset a channel:

1 Press the number buttons to enter the channel number, then press ENTER.
2 Press OK.
3 Press ↑/↓ to set MANUAL SET to ADD, then press OK.

Channel to be preset

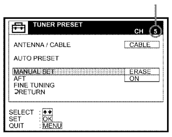

TUNER PRESET
CH 5
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
ON
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU



- To disable a channel:

1 Press CH +/– to select the channel number.
2 Press OK.
3 Press ↑/↓ to set MANUAL SET to ERASE, then press OK.

Channel to be disabled


TUNER PRESET
CH 5
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ERASE
AFT
ON
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

4

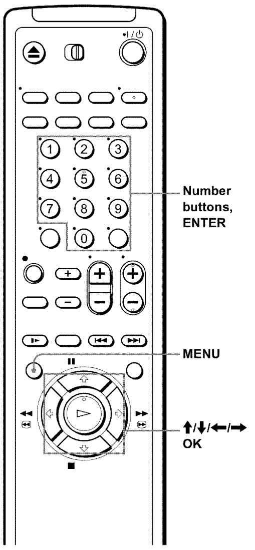
Repeat step 3 to preset or disable channels as required, then press MENU.

Tip

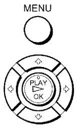
- If you want to return to the previous menu, highlight RETURN and press OK.

If the picture is not clear

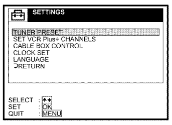
Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture of a channel is not clear, you can also use the manual tuning function.


Number buttons, ENTER
MENU
↑/↓/←/→
OK

1


MENU
PLAY
OK

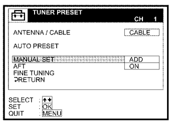
Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

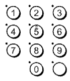
continued

2

Press ↑/↓ to highlight TUNER PRESET, then press OK.

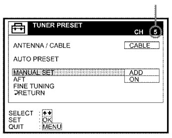

TUNER PRESET
CH 1
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
ON
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

3


1
2
3
4
5
6
7
8
9
0

Press the number buttons to select the channel you want to fine-tune, then press ENTER.

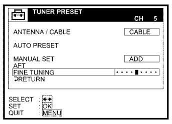
Selected channel


TUNER PRESET
CH 5
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
ON
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

4

Press ↑/↓ to highlight FINE TUNING, then press OK.

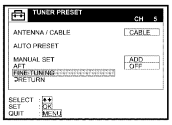
The fine tuning meter appears.


TUNER PRESET
CH 5
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
FINE TUNING
RETURN
SELECT : ←→
SET : OK
QUIT : MENU

5

Press ←/→ to adjust to a clearer picture, then press OK.

Note that the AFT setting switches to OFF.


TUNER PRESET
CH 5
ANTENNA / CABLE
CABLE
AUTO PRESET
MANUAL SET
ADD
AFT
OFF
FINE TUNING
RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

6

Press MENU to exit the menu.

Tips

- To select the channel in step 3 above, you can also use the CH +/– buttons. In this case, you don't need to press ENTER.
- If you want to return to the previous menu, highlight RETURN and press OK.

Note

- When adjusting FINE TUNING, the menu may become difficult to read due to interference from the picture being received.

Setting up the VCR Plus+ GOLD system (SLV-N80 only)

How the VCR Plus+ GOLD system works

Whenever you want to record a TV program, all you need to do is look up the "PlusCode" number, a number assigned to each program published in the TV section of most newspapers, cable TV listings, and even TV GUIDE magazine. Then, just enter the PlusCode number of the program you want and the VCR is automatically programmed to record that show. It's that simple.

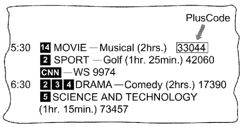
How to set up your VCR

Setting up your VCR involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide).

The VCR can set the guide channels automatically (see page 52), but you may have to set the guide channels manually depending on your area or the way you hooked up your VCR (see page 55).

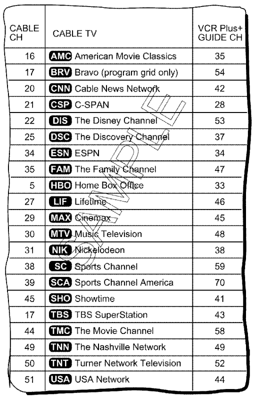
To find the guide channel numbers, look at the "Channel Line-up Chart" in the program guide for your area that features VCR PlusCodes. It usually looks like the example to the right.

Example of "PlusCode"



5:30 14 MOVIE — Musical (2hrs.) 33044
2 SPORT — Golf (1hr. 25min.) 42060
CNN — WS 9974
6:30 2 3 4 DRAMA — Comedy (2hrs.) 17390
5 SCIENCE AND TECHNOLOGY
(1hr. 15min.) 73457

Example of "Channel Line-up Chart"



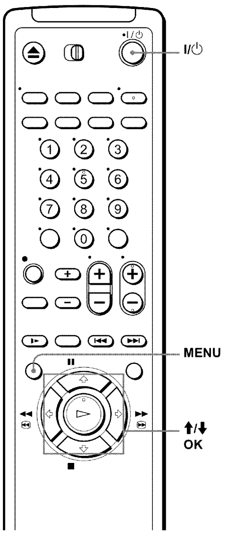
CABLE CH	CABLE TV	VCR Plus+ GUIDE CH
16	AMC American Movie Classics	35
17	BRV Bravo (program grid only)	54
20	CNN Cable News Network	42
21	CSP C-SPAN	28
22	DIS The Disney Channel	53
25	DSC The Discovery Channel	37
34	ESN ESPN	34
35	FAM The Family Channel	47
5	HBO Home Box Office	33
27	LIF Lifetime	46
29	MAX Cinemax	45
30	MTV Music Television	48
31	NIK Nickelodeon	38
38	SC Sports Channel	59
39	SCA Sports Channel America	70
45	SHO Showtime	41
17	TBS TBS SuperStation	43
44	TMC The Movie Channel	58
49	TNN The Nashville Network	49
50	TNT Turner Network Television	52
51	USA USA Network	44

continued

Setting up the VCR Plus+ GOLD system automatically (Smart Channel Mapping)

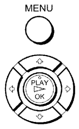
The VCR can automatically set the guide channels in your area from ZIP/POSTAL CODE you entered in EASY SET UP. The VCR receives the program information signal and renews the data everyday after you complete the following procedure.

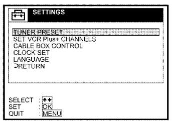
If you are having trouble setting the guide channels, or if you have many scrambled channels, go to page 56 for manual VCR Plus+ GOLD system set up. Note that the VCR Plus+ GOLD system does not work with a digital satellite receiver.



1 Set up the VCR using the EASY SET UP function.

2 Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.



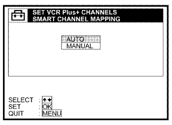


SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
⊃RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

3 Press ↑/↓ to highlight SET VCR Plus+ CHANNELS, then press OK.

The SMART CHANNEL MAPPING menu appears.



SET VCR Plus+ CHANNELS
SMART CHANNEL MAPPING

AUTO
MANUAL

SELECT : ↑↓
SET : OK
QUIT : MENU

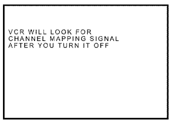
4 Press ↑/↓ to highlight AUTO, then press OK.

The instruction shown on the right appears on the TV screen for a few seconds, then the screen returns to the normal display.

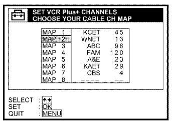
- If you made Hookup 1: leave your cable box on for correct channel mapping.
- If you made Hookup 3: turn your cable box off for correct channel mapping.
- If you made Hookup 6: set the A/B switch to “A.”

Note that channel mapping does not work for Hookup 2 or 5.

If the program information signal in your area has several channel map patterns, the CHOOSE YOUR CABLE CH MAP menu appears, and you must select the channel map. See the following section “To select the channel map.”



VCR WILL LOOK FOR
CHANNEL MAPPING SIGNAL
AFTER YOU TURN IT OFF



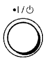
SET VCR Plus+ CHANNELS
CHOOSE YOUR CABLE CH MAP

MAP 1	KCET	45
MAP 2	WNET	13
MAP 3	ABC	98
MAP 4	FAM	120
MAP 5	A&E	23
MAP 6	KAET	29
MAP 7	CBS	4
MAP 8	----	--

SELECT : ↑↓
SET : OK
QUIT : MENU

5 Press I/⏻ to turn off the VCR.

The VCR sets the program guide channels from 0:00 am to 5:00 am while the VCR is turned off. (It takes about one hour to complete channel mapping.)



Tips

- After channel setup is finished, you can record TV programs using the VCR Plus+ GOLD system. For details, see page 74.
- If you want to return to the previous menu, highlight RETURN and press OK.

Note

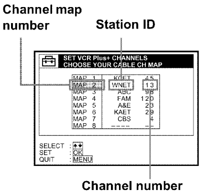
- If the CHOOSE YOUR CABLE CH MAP menu appears the first time you turn on the VCR after finishing channel setup, see the following section “To select the channel map”.

continued

To select the channel map

If the program information signal in your area has several channel map patterns (up to 8), the CHOOSE YOUR CABLE CH MAP menu appears:

- the first time you turn on the VCR after completing channel mapping
- after selecting AUTO and pressing OK on the SMART CHANNEL MAPPING menu



SET VCR Plus+ CHANNELS
CHOOSE YOUR CABLE CH MAP

MAP 1	KCET	45
MAP 2	WNET	13
MAP 3	ABC	98
MAP 4	FAM	120
MAP 5	A&E	23
MAP 6	KAET	29
MAP 7	CBS	4
MAP 8	----	--

SELECT : ↑↓
SET : OK
QUIT : MENU

In this case, you have to select the channel map on the CHOOSE YOUR CABLE CH MAP menu.

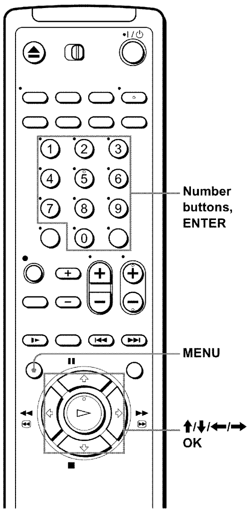
1. Find the VCR Plus+ GOLD system Channel Listing in your program guide. For details, see page 51.
2. Press ↑/↓ to highlight the channel map number you want by checking the channel number in the program guide.
3. Press OK.

Notes

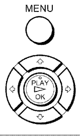
- It takes about one hour to complete channel mapping.
- The VCR can receive the program information signal only while the VCR is turned off and no timer recordings are set.
- The VCR cannot set the guide channels correctly unless you enter the ZIP/POSTAL CODE in your area.
- When you move to a different area, you must set up the VCR again and enter your new ZIP/POSTAL CODE in the EASY SET UP procedure.

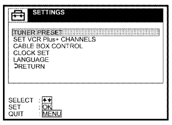
Setting up the VCR Plus+ GOLD system manually

To set the guide channels, use the Channel Line-up Chart to check that the guide channel numbers match the TV channel your VCR receives. For example, if HBO is listed in the Channel Line-up Chart as channel 33, and your VCR receives HBO on channel 5, you need to coordinate these numbers using the following procedure. If the guide and TV channel numbers are the same, you can skip this procedure.



1 Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

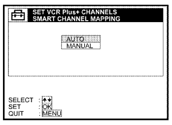




SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
⊃RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

2 Press ↑/↓ to highlight SET VCR Plus+ CHANNELS, then press OK.



SET VCR Plus+ CHANNELS
SMART CHANNEL MAPPING

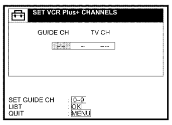
AUTO
MANUAL

SELECT : ↑↓
SET : OK
QUIT : MENU

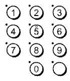
continued

3

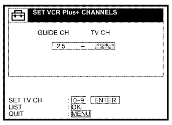
Press ↑/↓ to highlight MANUAL, then press OK.


SET VCR Plus+ CHANNELS
GUIDE CH TV CH
--- – ---
SET GUIDE CH : 0–9
LIST : OK
QUIT : MENU

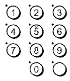
4



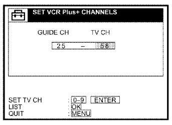
Enter the guide channel number assigned in the program guide and press ENTER.


SET VCR Plus+ CHANNELS
GUIDE CH TV CH
25 – 25
SET TV CH : 0–9 ENTER
LIST : OK
QUIT : MENU

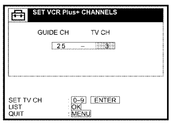
5



- If you made Hookup 1, 3, or 4: Enter the actual number on your TV (and VCR) and press ENTER.


SET VCR Plus+ CHANNELS
GUIDE CH TV CH
25 – 58
SET TV CH : 0–9 ENTER
LIST : OK
QUIT : MENU

- If you made Hookup 5: Enter the cable box output channel (usually 2, 3, or 4) and press ENTER.
- If you made Hookup 6: Enter the actual number on your TV (and VCR) for an unscrambled channel and press ENTER. For a scrambled channel, enter the cable box output channel (usually 2, 3, or 4) and press ENTER.


SET VCR Plus+ CHANNELS
GUIDE CH TV CH
25 – 3
SET TV CH : 0–9 ENTER
LIST : OK
QUIT : MENU

6

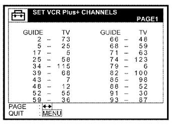
Repeat steps 4 and 5 for each channel number that does not match.

7

When you have set all channels, press OK to confirm your channel settings.

To return to the previous page, press ←.

To go to the next page, press →.


SET VCR Plus+ CHANNELS
PAGE1

GUIDE		TV	GUIDE		TV
2	–	73	66	–	48
5	–	25	68	–	59
17	–	5	71	–	63
25	–	58	74	–	123
34	–	115	79	–	6
39	–	68	82	–	100
43	–	7	85	–	98
48	–	12	88	–	52
52	–	55	91	–	30
59	–	36	93	–	87

PAGE : ←→
QUIT : MENU

8

After all settings are complete, press MENU to exit the menu.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Setting up the VCR Plus+ system (SLV-N70 only)

How the VCR Plus+ system works

Whenever you want to record a TV program, all you need to do is look up the "PlusCode" number, a number assigned to each program published in the TV section of most newspapers, cable TV listings, and even TV GUIDE magazine. Then, just enter the PlusCode number of the program you want and the VCR is automatically programmed to record that show. It's that simple.

How to set up your VCR

Setting up your VCR involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide).

To find the guide channel numbers, look at the "Channel Line-up Chart" in the program guide for your area that features VCR PlusCodes. It usually looks like the example to the right.

To set the guide channels, use the Channel Line-up Chart to check that the guide channel numbers match the TV channel your VCR receives. For example, if HBO is listed in the Channel Line-up Chart as channel 33, and your VCR receives HBO on channel 5, you need to coordinate these numbers using the following procedure. If the guide and TV channel numbers are the same, you can skip this procedure.

Example of "PlusCode"

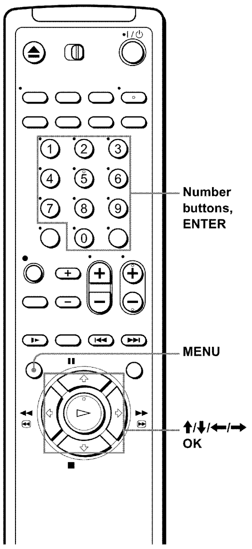
PlusCode

5:30 14 MOVIE — Musical (2hrs.) 33044
2 SPORT — Golf (1hr. 25min.) 42060
CNN — WS 9974
6:30 2 3 4 DRAMA — Comedy (2hrs.) 17390
5 SCIENCE AND TECHNOLOGY
(1hr. 15min.) 73457

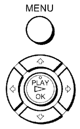
Example of "Channel Line-up Chart"

CABLE CH	CABLE TV	VCR Plus+ GUIDE CH
16	AMC American Movie Classics	35
17	BRV Bravo (program grid only)	54
20	CNN Cable News Network	42
21	CSP C-SPAN	28
22	DIS The Disney Channel	53
25	DSC The Discovery Channel	37
34	ESN ESPN	34
35	FAM The Family Channel	47
5	HBO Home Box Office	33
27	LIF Lifetime	46
29	MAX Cinemax	45
30	MTV Music Television	48
31	NIK Nickelodeon	38
38	SC Sports Channel	59
39	SCA Sports Channel America	70
45	SHO Showtime	41
17	TBS TBS SuperStation	43
44	TMC The Movie Channel	58
49	TNN The Nashville Network	49
50	TNT Turner Network Television	52
51	USA USA Network	44

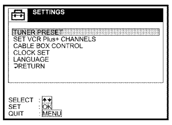
SAMPLE



1

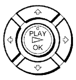


Press MENU, then press ↑/↓ to highlight SETTINGS and press OK.

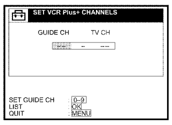

SETTINGS
TUNER PRESET
SET VCR Plus+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
↩RETURN
SELECT : ↑↓
SET : OK
QUIT : MENU

continued

2

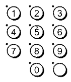


Press ⬆/⬇ to highlight SET VCR Plus+ CHANNELS, then press OK.

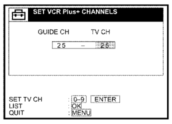

```
SET VCR Plus+ CHANNELS
GUIDE CH     TV CH
  --    –    ---

SET GUIDE CH  : 0–9
LIST          : OK
QUIT          : MENU
```

3

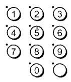


Enter the guide channel number assigned in the program guide and press ENTER.

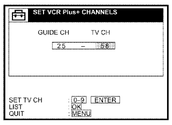

```
SET VCR Plus+ CHANNELS
GUIDE CH     TV CH
  25    –    25

SET TV CH     : 0–9  ENTER
LIST          : OK
QUIT          : MENU
```

4

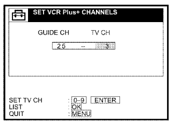


- If you made Hookup 3 or 4: Enter the actual number on your TV (and VCR) and press ENTER.


```
SET VCR Plus+ CHANNELS
GUIDE CH     TV CH
  25    –    58

SET TV CH     : 0–9  ENTER
LIST          : OK
QUIT          : MENU
```

- If you made Hookup 5: Enter the cable box output channel (usually 2, 3, or 4) and press ENTER.
- If you made Hookup 6: Enter the actual number on your TV (and VCR) for an unscrambled channel and press ENTER. For a scrambled channel, enter the cable box output channel (usually 2, 3, or 4) and press ENTER.


```
SET VCR Plus+ CHANNELS
GUIDE CH     TV CH
  25    –     3

SET TV CH     : 0–9  ENTER
LIST          : OK
QUIT          : MENU
```

5

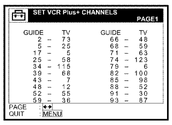
Repeat steps 3 and 4 for each channel number that does not match.

6

When you have set all channels, press OK to confirm your channel settings.

To return to the previous page, press ⬅.

To go to the next page, press ➡.


```
SET VCR Plus+ CHANNELS
                          PAGE1
GUIDE    TV       GUIDE    TV
  2  –   73         66  –  48
  5  –   25         68  –  59
 17  –    5         71  –  63
 25  –   58         74  – 123
 34  –  115         79  –   6
 39  –   68         82  – 100
 43  –    7         85  –  98
 48  –   12         88  –  52
 52  –   55         91  –  30
 59  –   36         93  –  87
PAGE  : ⬅➡
QUIT  : MENU
```

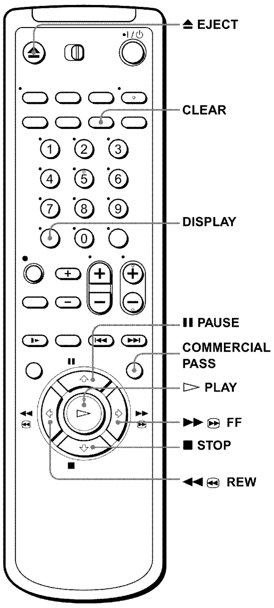
7

After all settings are complete, press MENU to exit the menu.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Playing a tape



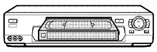
1

Turn on your TV and set it to the video channel.

2

Insert a tape.

The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.



3

Press ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Fast-forward the tape	▶▶ FF during stop
Rewind the tape	◀◀ REW during stop
Eject the tape	≜ EJECT

To skip playback

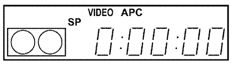
By pressing a single button, you can skip a portion of playback you don't want to watch (such as a commercial) and restart playback.

1. Press COMMERCIAL PASS during playback of the scene you want to skip. The VCR starts searching.
2. Press COMMERCIAL PASS again when you find the scene you want to watch. The VCR stops searching, rewinds a few seconds, then resumes normal playback.

If you press and hold COMMERCIAL PASS while the VCR is skip searching, the VCR will stop searching, and continue rewinding until you release COMMERCIAL PASS.

To use the time counter

Press CLEAR at the point on the tape that you want to find later. The counter in the display window resets to "0:00:00." Search for the point afterwards by referring to the counter.



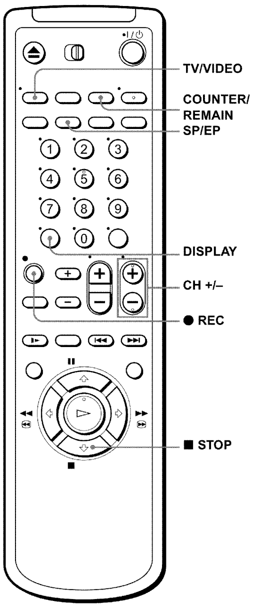
To display the counter on the TV screen, press DISPLAY.

continued

Notes

- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- While displaying a menu on the TV screen, you cannot use ▷ PLAY, ❚❚ PAUSE, ▶▶ ⏩ FF, ◀◀ ⏪ REW, or ■ STOP buttons.
- The counter resets to “0:00:00” whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.

Recording TV programs



1 Turn on your TV and set it to the video channel.

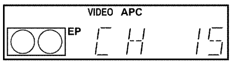
To record from a cable box, turn it on.

2 Insert a tape with its safety tab in place.

continued

3 • CH

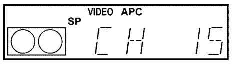
Press CH +/– to select the channel or line input video source you want to record.



4 SP / EP

Press SP/EP to select the tape speed, SP or EP.

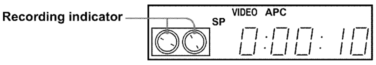
EP (Extended Play) provides recording time three times as long as SP (Standard Play). However, SP produces better picture and audio quality.



5 ●REC

Press ● REC to start recording.

The recording indicator lights up red in the display window.

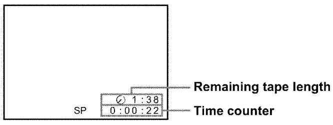


To stop recording

Press ■ STOP.

To check the remaining tape length

Press DISPLAY repeatedly until the remaining tape length and the time counter appear on the TV screen. Each time you press COUNTER/REMAIN, the time counter and the remaining tape length with the ⊘ indicator appear alternately in the VCR’s display window.



To check the remaining tape length of a T-140 or T-180 tape, set TAPE SELECT in the ADVANCED OPTIONS menu to 180. (For details, see page 97.)

To watch another TV program while recording

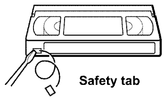
1 Press TV/VIDEO to turn off the VIDEO indicator in the display window.

2 If the TV is connected to the VCR’s LINE OUT jacks, set the TV to TV input; if not, skip this step.

3 Select another channel on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on the tape again, cover the tab hole with adhesive tape.



Tips

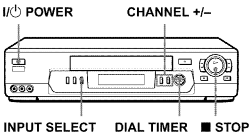
- To select a channel, you can use the number buttons on the remote commander. Enter the channel number, then press ENTER.
- You can select a video source from the LINE-1 IN or LINE-2 IN jacks using the INPUT SELECT button.
- The display appears on the TV screen indicating information about the tape, but the information won’t be recorded on the tape.
- If you don’t want to watch TV while recording, you can turn off the TV. When using a cable box, make sure to leave it on.

Notes

- The remaining tape length may not be indicated accurately for short tapes such as T-20 or T-30, or tapes recorded in the LP mode.
- The display does not appear during still (pause) mode or slow-motion playback.
- It may take up to one minute for the VCR to calculate and display the remaining tape length after you press DISPLAY.

Recording TV programs using the Dial Timer

The Dial Timer function allows you to make timer recordings of programs without turning on your TV. Set the recording timer to record up to eight programs that will be broadcast within a month using the DIAL TIMER. The recording start time and recording stop time can be set at one minute intervals.



Before you start...

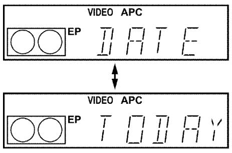
- When using a cable box, turn it on.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.

1

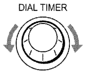
Press DIAL TIMER.

"DATE" and "TODAY" appear alternately in the display window.

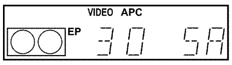
If the date and time are not set, "MONTH" will appear. See step 2 in the following section "To set the clock" to set the date and time.



2



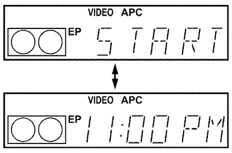
Turn DIAL TIMER to set the recording date.



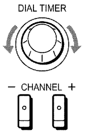
3

Press DIAL TIMER.

"START" and the current time appear alternately in the display window.

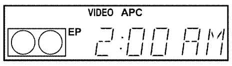


4



Turn DIAL TIMER to set the recording start time.

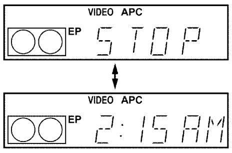
You can set the recording start time in 15 minute intervals or adjust the time in one minute intervals by pressing the CHANNEL +/– buttons.



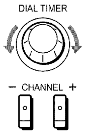
5

Press DIAL TIMER.

"STOP" and the recording stop time appear alternately in the display window.

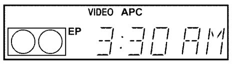


6



Turn DIAL TIMER to set the recording stop time.

You can set the recording stop time in 15 minute intervals or adjust the time in one minute intervals by pressing the CHANNEL +/– buttons.

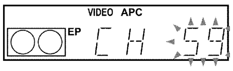


continued

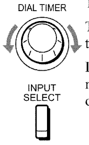
7

Press DIAL TIMER.

The channel number or station ID (SLV-N80 only) appears in the display window.



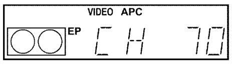
8



Turn DIAL TIMER to set the channel number.

To record from a source connected to the LINE-1 IN or LINE-2 IN jacks, turn DIAL TIMER or press INPUT SELECT to display "L1" or "L2".

If the CABLE BOX CONTROL setting is ON, you can change the channel number in units of 100 by pressing the CHANNEL +/– buttons (SLV-N80 only).



9

Press DIAL TIMER to complete the setting.

"OK" appears in the display window for about five seconds.

The ⏲ indicator appears in the display window and the VCR stands by for recording. When using a cable box, leave it on.

To return to the previous step

To return to the previous step, press the CHANNEL + and – buttons on the VCR at the same time during any of the Dial Timer settings.

To stop recording

To stop the VCR while recording, press ■ STOP.

To use the VCR after setting the timer

To use the VCR before a timer recording begins, just press I/⏻. The ⏲ indicator disappears from the display window and the VCR switches on. Remember to press I/⏻ to reset the VCR to the timer recording standby mode after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter (page 63).
- Display tape information on the TV screen (page 66).
- Check the timer settings (page 82).
- Watch another TV program (page 67).

To lock the VCR after setting the timer (Child Lock)

When the VCR is turned on, hold down I/⏻ POWER on the VCR until the ⊶ indicator appears in the display window. The VCR turns off and the ⊶ indicator remains lit. The VCR will not work except for timer recordings.

To unlock the VCR, hold down I/⏻ POWER on the VCR until the ⊶ indicator disappears from the display window. The VCR is unlocked and turns on.

To stop timer recording while the VCR is locked, press ■ STOP. The recording stops and the VCR is unlocked.

To set the clock

1. Turn DIAL TIMER so that "CLOCK" appears in the display window.
2. Press DIAL TIMER.
   "MONTH" appears in the display window.
3. Turn DIAL TIMER to set the month.
4. Press DIAL TIMER.
   "DAY" appears in the display window.
5. Turn and press DIAL TIMER to set the day and then the year.
   After you set the year, "CLOCK" appears in the display window again.
6. Turn and press DIAL TIMER to set the hour and minute.
7. When you have finished setting the time, press DIAL TIMER to start the clock.

Tips

- To cancel a Dial Timer setting, press ■ STOP on the VCR while you are making the setting.
- The program is recorded in the current tape speed. To change the tape speed, press SP/EP before you complete the setting in step 9.
- When you are recording a program in the SP mode and the remaining tape becomes shorter than the recording time, the tape speed is automatically changed to the EP mode. Note that some noise will appear on the picture when the tape speed is changed. If you want to keep the tape speed, set AUTO TAPE SPEED to OFF in the ADVANCED OPTIONS menu (page 97).
- To check, change, or cancel the program setting, see "Checking/changing/canceling timer settings" (page 82).

Notes

- If eight programs have already been set using the VIDEO Plus+/VIDEO Plus+ GOLD system or the TIMER SET/CHECK menu, "FULL" appears in the display window for about five seconds.
- If you are using the Cable Mouse, you cannot select "L1" or "L2."(SLV-N80 only)
- If you set the clock using the Auto Clock Set function, the clock will adjust itself to the incoming time signal regardless of adjustments made with the Dial Timer. Be sure you have set ACS correctly.
- You cannot set the clock to February 29th using the Dial Timer. Please use the Auto Clock Set function to set the VCR to this day.
- The ⏲ indicator flashes in the display window when you complete the setting in step 9 with no tape inserted.

continued

- The VCR will be unlocked when:
  - You stop timer recording by pressing ■ STOP.
  - You insert a tape.
  - The AC power cord is disconnected or power supply stops.
- The station ID appears on the TV screen only when you complete Smart Channel Mapping and the VCR receives the program information signal (SLV-N80 only) (see page 52).

About the Demonstration Mode

The Dial Timer function has a Demonstration Mode that allows the user, such as a salesperson, to enter more than eight examples of timer settings when demonstrating the use of the Dial Timer. It cancels the FULL notice which appears if eight programs have already been set. Do not use the Demonstration Mode for making timer recordings. Doing so may cause the settings to be inaccurate.

To activate the Demonstration Mode

Press ❚❚ PAUSE on the VCR while turning the DIAL TIMER. “DEMO” appears in the display window for a few seconds.

To cancel the Demonstration Mode

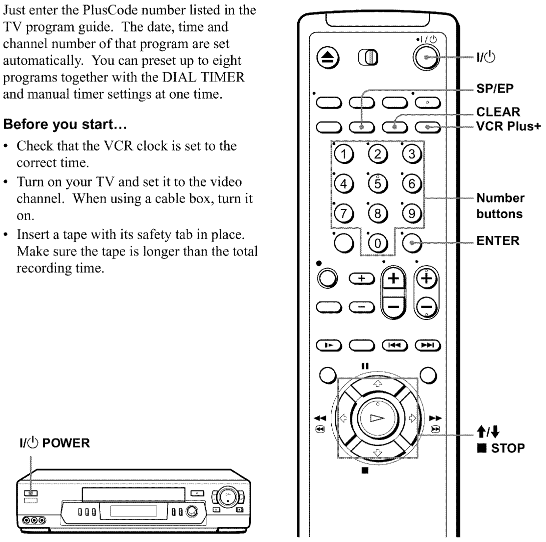
Turn the power off and unplug the AC power cord. Although the Demonstration Mode is canceled, the timer settings entered while using the Demonstration Mode will remain. Be sure to manually cancel the timer settings before you use the Dial Timer or any other timer method after reconnecting the AC power cord (see page 82).

Recording TV programs using the VCR Plus+ or VCR Plus+ GOLD system

Just enter the PlusCode number listed in the TV program guide. The date, time and channel number of that program are set automatically. You can preset up to eight programs together with the DIAL TIMER and manual timer settings at one time.

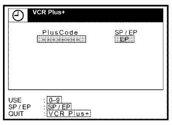
Before you start…

- Check that the VCR clock is set to the correct time.
- Turn on your TV and set it to the video channel. When using a cable box, turn it on.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.



1 VCR Plus+

Press VCR Plus+.



PlusCode -------- SP / EP EP

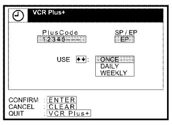
USE : 0–9
SP / EP : SP / EP
QUIT : VCR Plus+

continued

2 CLEAR

Press the number buttons to enter the PlusCode number.

If you make a mistake, press CLEAR and re-enter the correct number.



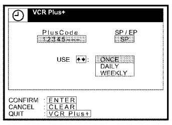
PlusCode 12345--- SP / EP EP

USE ↑↓ : ONCE / DAILY / WEEKLY

CONFIRM : ENTER
CANCEL : CLEAR
QUIT : VCR Plus+

3 SP / EP

Press SP/EP to select the tape speed, SP or EP.



PlusCode 12345--- SP / EP SP

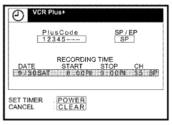
USE ↑↓ : ONCE / DAILY / WEEKLY

CONFIRM : ENTER
CANCEL : CLEAR
QUIT : VCR Plus+

4 • ENTER

Press ↑/↓ to highlight ONCE, DAILY, or WEEKLY, then press ENTER:

To record	Select
Only once	ONCE
Everyday Monday to Friday	DAILY
Once a week	WEEKLY



PlusCode 12345--- SP / EP SP

RECORDING TIME

DATE	START	STOP	CH	
9 / 30SAT	8 : 00PM	9 : 00PM	35	SP

SET TIMER : POWER
CANCEL : CLEAR

CLEAR

The date, start and stop time, channel number (or station ID for SLV-N80 only), and tape speed appear on the TV screen. If the information is not correct, press CLEAR to cancel the setting.

5 To enter another setting, repeat steps 1 to 4.

6 •I/⏻

Press I/⏻ to turn off the VCR.

The ⏲ indicator appears in the display window and the VCR stands by for recording. When using a cable box, leave it on.

To stop recording

To stop the VCR while recording, press ■ STOP.

To use the VCR after setting the timer

To use the VCR before timer recording begins, just press I/⏻. The ⏲ indicator disappears from the display window and the VCR switches on. Remember to press I/⏻ to reset the VCR to the timer recording standby mode after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter (page 63).
- Display tape information on the TV screen (page 66).
- Check the timer settings (page 82).
- Watch another TV program (page 67).

To lock the VCR after setting the timer (Child Lock)

When the VCR is turned on, hold down I/⏻ POWER on the VCR until the 🔑 indicator appears in the display window. The VCR turns off and the 🔑 indicator remains lit. The VCR will not work except for timer recordings.

To unlock the VCR, hold down I/⏻ POWER on the VCR until the 🔑 indicator disappears from the display window. The VCR is unlocked and turns on.

To stop timer recording while the VCR is locked, press ■ STOP. The recording stops and the VCR is unlocked.

Tips

- To check, change or cancel the program setting, see “Checking/changing/canceling timer settings” (page 82).
- When you are recording a program in the SP mode and the remaining tape becomes shorter than the recording time, the tape speed is automatically changed to the EP mode. Note that some noise will appear on the picture when the tape speed is changed. If you want to keep the tape speed, set AUTO TAPE SPEED to OFF in the ADVANCED OPTIONS menu (page 97).

Notes

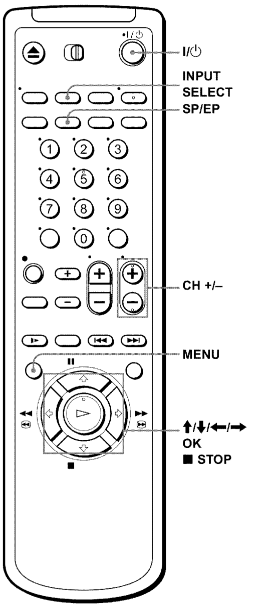
- If the VCR does not accept the PlusCode number, this means that:
  - The PlusCode number is incorrect.
  - ONCE, DAILY, or WEEKLY was selected incorrectly. You cannot select DAILY or WEEKLY for a program that airs more than seven days ahead.
- The VCR will be unlocked when:
  - You stop timer recording by pressing ■ STOP.
  - You insert a tape.
  - The AC power cord is disconnected or power supply stops.
- The station ID appears on the TV screen only when you complete Smart Channel Mapping and the VCR receives the program information signal (SLV-N80 only) (see page 52).

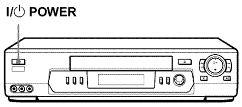
Setting the timer manually

If the VCR Plus+ or VCR Plus+ GOLD system is not available in your area, follow the instructions below to set the timer to record programs.

Before you start…

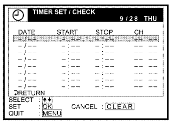
- Check that the VCR clock is set to the correct time.
- Turn on your TV and set it to the video channel. When using a cable box, turn it on.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.





1 Press MENU, then press ⬆/⬇ to highlight TIMER SET/CHECK and press OK.

MENU
PLAY
OK



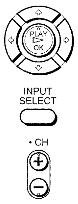
2 Press ⬆/⬇ to highlight the line that is to be set, then press OK.

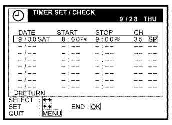
3 Set the date, start and stop time, channel number, and tape speed:

1 Press ⬆/⬇ to set each item.

2 Press ➡ to highlight and set each item in turn.

To correct a setting, press ⬅ to return to that setting and reset.





When you set the channel number, the station ID may appear in the "CH" position. You can set it while checking the station ID (SLV-N80 only).

To record the same program every day or the same day every week, press ⬇ while the date is highlighted. For details, see "Daily/weekly recording" below.

To record from a source connected to the LINE-1 IN or LINE-2 IN jacks, press INPUT SELECT or CH +/– to display "L1" or "L2" in the "CH" position.

4 Press OK to confirm the setting.

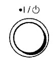
To enter another setting, press ⬆/⬇ to highlight the next line and repeat step 3.

5 Press MENU to exit the menu.

6 Press I/⏻ to turn off the VCR.

The ⏲ indicator appears in the display window and the VCR stands by for recording.

When using a cable box, leave it on.



To stop recording

To stop the VCR while recording, press ■ STOP.

continued

Daily/weekly recording

In step 3 above, press ⬇ to select the recording pattern. Each time you press ⬇, the indication changes as shown below. Press ⬆ to change the indication in reverse order.

the current date → SUN-SAT → MON-SAT → MON-FRI → EVERY SAT → ..... → EVERY MON → EVERY SUN → 1 month later → (dates count down) → the current date

To use the VCR after setting the timer

To use the VCR before timer recording begins, just press I/⏻. The ⏲ indicator disappears from the display window and the VCR switches on. Remember to press I/⏻ to reset the VCR to the timer recording standby mode after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter (page 63).
- Display tape information on the TV screen (page 66).
- Check the timer settings (page 82).
- Watch another TV program (page 67).

To lock the VCR after setting the timer (Child Lock)

When the VCR is turned on, hold down I/⏻ POWER on the VCR until the O━ indicator appears in the display window. The VCR turns off and the O━ indicator remains lit. The VCR will not work except for timer recordings.

To unlock the VCR, hold down I/⏻ POWER on the VCR until the O━ indicator disappears from the display window. The VCR is unlocked and turns on.

To stop timer recording while the VCR is locked, press ■ STOP. The recording stops and the VCR is unlocked.

Tips

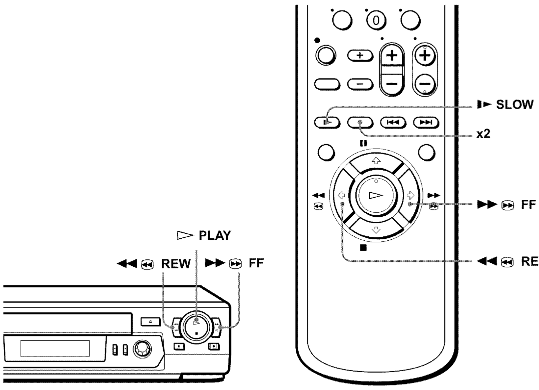
- To set the channel, you can also use the CH+/– or number buttons.
- To set the tape speed, you can also use the SP/EP button.
- When you are recording a program in the SP mode and the remaining tape becomes shorter than the recording time, the tape speed is automatically changed to the EP mode. Note that some noise will appear on the picture when the tape speed is changed. If you want to keep the tape speed, set AUTO TAPE SPEED to OFF in the ADVANCED OPTIONS menu (page 97).
- To check, change or cancel the program setting, see "Checking/changing/canceling timer settings" (page 82).
- If you want to return to the previous menu and continue with other operations after setting the timer, press ⬇ to highlight RETURN, then press OK.
  The display returns to the MENU screen.
  If you are finished using the VCR, turn off the power before timer recording starts.

Notes

- If you are using a Cable Mouse, you cannot select "L1" or "L2." (SLV-N80 only)
- The station ID appears on the TV screen only when you complete Smart Channel Mapping and the VCR receives the program information signal (SLV-N80 only) (see page 52).

Additional Operations

Playing/searching at various speeds



Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, hold down ▶▶ ⏩ FF. During rewind, hold down ◀◀ ⏪ REW.
Play at high speed	• During playback, press ▶▶ ⏩ FF or ◀◀ ⏪ REW on the remote commander. • During playback, hold down ▶▶ ⏩ FF or ◀◀ ⏪ REW. When you release the button, normal playback resumes.
Play at twice the normal speed	During playback, press ×2.
Play in slow motion	During playback or pause, press I▶ SLOW.
Play frame by frame	During pause, press ▶▶ ⏩ FF or ◀◀ ⏪ REW on the remote commander. Hold down the button to play one frame each second.
Rewind and start play	While the tape is stopped, hold down ◀◀ ⏪ REW on the VCR and press ▷ PLAY on the VCR.

To resume normal playback

Press ▷ PLAY.

continued

Tip

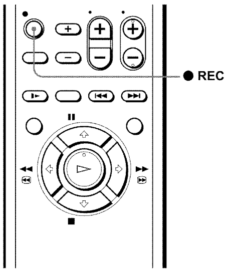
- Adjust the picture using the TRACKING +/– buttons if:
  – Streaks appear while playing in slow motion.
  – The picture shakes during pause.
  To set tracking to the center position, press both buttons (+/–) at the same time.

Notes

- The sound is muted during these operations.
- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- The picture may show noise when playing at high speed in reverse.

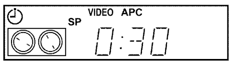
Setting the recording duration time

After you have started recording in the normal way, you can have the VCR stop recording automatically after a specified duration.



1 While recording, press ● REC.

The ⏲ indicator appears in the display window.



2 Press ● REC repeatedly to set the duration time.

Each press advances the time in increments of 30 minutes.

→ 0:30 → 1:00 - - - → 5:30 → 6:00 → Normal recording

The tape counter decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press ● REC repeatedly to set a new duration time.

To cancel the duration

Press ● REC repeatedly until the ⏲ indicator disappears and the VCR returns to normal recording mode.

To stop while recording

Press ■ STOP.

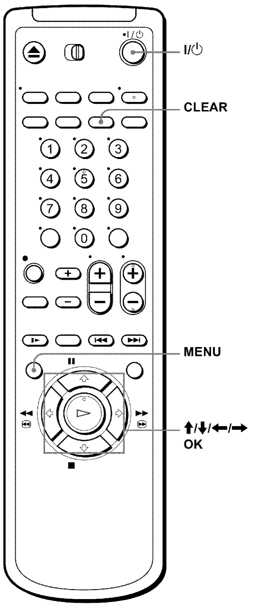
Note

- You cannot display the current tape time in the display window when setting the recording duration time.

Checking/changing/canceling timer settings

Before you start…

- Turn on your TV and set it to the video channel.



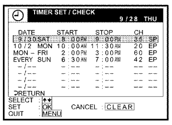
1 Press I/⏻ to turn on the VCR.

2 Press MENU, then press ↑/↓ to highlight TIMER SET/CHECK and press OK.

- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press MENU, then turn off the VCR to return to recording standby.

3 Press ↑/↓ to highlight the setting you want to change or cancel.

- To change the setting, press OK and press ←/→ to highlight the item you want to change, then press ↑/↓ to reset it.
- To cancel the setting, press CLEAR.



TIMER SET / CHECK
9 / 28 THU

DATE		START	STOP	CH	
9 / 30	SAT	8 : 00PM	9 : 00PM	35	SP
10 / 2	MON	10 : 00AM	11 : 30AM	20	EP
MON –	FRI	2 : 00PM	3 : 00PM	60	EP
EVERY	SUN	6 : 30AM	7 : 00AM	42	EP
– / – –		– : – –	– : – –	– –	– –
– / – –		– : – –	– : – –	– –	– –
– / – –		– : – –	– : – –	– –	– –
– / – –		– : – –	– : – –	– –	– –

RETURN
SELECT : ↑↓
SET : OK CANCEL : CLEAR
QUIT : MENU

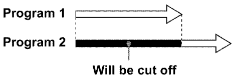
4 Press OK.

5 Press MENU to exit the menu.

If any timer settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The program that starts first has priority and the second program starts recording only after the first program has finished. If the programs start at the same time, the program listed first in the menu has priority.



Recording stereo and bilingual programs

Recording stereo programs

This VCR automatically receives and records stereo programs. When a stereo program is received, the STEREO indicator lights up. If there is noise in the stereo program, set AUTO STEREO in the ADVANCED OPTIONS menu to OFF. The sound will be recorded in monaural (on both hi-fi and normal audio tracks) but with less noise. For details, see page 97.

Recording bilingual programs

Normally, this VCR records only the main sound. When a SAP (Second Audio Program) is received, the SAP indicator lights up. To record only SAP sound, set TUNER AUDIO in the ADVANCED OPTIONS menu to SAP. For details, see page 97.

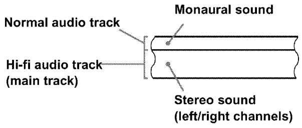
Selecting the sound during playback

Press AUDIO MONITOR to select the sound you want. (If you are recording, the sound being recorded will not change.)

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Left channel	L	STEREO
Right channel	R	STEREO
Monaural sound on the normal audio track	No indicator	No indicator

How sound is recorded on a video tape

The VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Notes

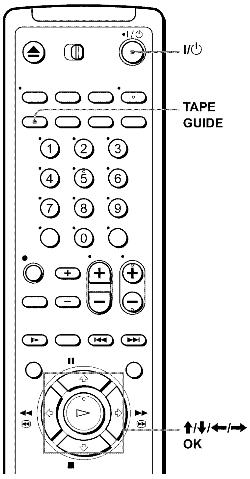
- To play a tape in stereo, you must use the A/V connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

Searching using the Tape Guide function (SLV-N80 only)

If you record multiple programs on a tape, use the Tape Guide function to see what has been recorded on your tape. You can see information such as date, time, and channel of programs recorded on a tape. You can also start playback directly from the selected program using the TAPE GUIDE screen.

All programs are listed on the screen, regardless of how the program was recorded.

The data of the last tape inserted into the VCR is automatically stored in memory. If you want to recall the latest data screen, select YES in RECALL LATEST DATA in the TAPE GUIDE screen (see page 87).



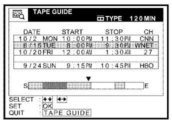
Before you start…

- Turn on your TV and set it to the video channel.

1 After recording, press I/⏻ to turn on the VCR.

2 Press TAPE GUIDE.

3 Press ↑/↓/←/→ to select the program you want to start viewing.

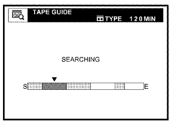

TAPE GUIDE
TYPE 120 MIN

DATE		START	STOP	CH
10/2	MON	10:00PM	11:30PM	CNN
8/15	TUE	8:00PM	9:30PM	WNET
10/20	FRI	12:00AM	1:30AM	27
9/24	SUN	9:15PM	10:45PM	HBO

S E
SELECT : ↑↓ ←→
SET : OK
QUIT : TAPE GUIDE

4 Press OK.

The VCR starts searching, and playback starts automatically from the beginning of the selected program.


TAPE GUIDE
TYPE 120 MIN
SEARCHING
S E

To stop searching

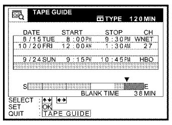
Press ■ STOP.

To exit the TAPE GUIDE screen

Press TAPE GUIDE.

To record in a blank space

Blank space on the tape will appear as a blank row in the TAPE GUIDE screen. Select the last blank row in step 3, then press OK. The VCR rewinds/fast-forwards the tape to the beginning of the blank space, then stops. Start recording. Note that "BLANK TIME" and the remaining time indication only appear when the last blank space is selected.


TAPE GUIDE
TYPE 120 MIN

DATE		START	STOP	CH
8/15	TUE	8:00PM	9:30PM	WNET
10/20	FRI	12:00AM	1:30AM	27
9/24	SUN	9:15PM	10:45PM	HBO

S E
BLANK TIME 38 MIN
SELECT : ↑↓ ←→
SET : OK
QUIT : TAPE GUIDE

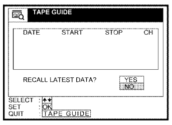
To recall the latest data screen after you remove the tape

You can display the data of the last tape used to record a program, even after you have removed the tape.

If you reinsert the tape and record additional programs, be sure to select YES in RECALL LATEST DATA. Otherwise, all of the data for the tape is deleted.

1 Reinsert the last tape that you used to record a program.

2 Press TAPE GUIDE.

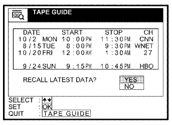

TAPE GUIDE

DATE	START	STOP	CH

RECALL LATEST DATA? YES NO
SELECT : ↑↓
SET : OK
QUIT : TAPE GUIDE

3 Press ↑/↓ to highlight YES in RECALL LATEST DATA.

If you want to reset the latest data screen, highlight NO and press OK, then record a program.


TAPE GUIDE

DATE		START	STOP	CH
10/2	MON	10:00PM	11:30PM	CNN
8/15	TUE	8:00PM	9:30PM	WNET
10/20	FRI	12:00AM	1:30AM	27
9/24	SUN	9:15PM	10:45PM	HBO

RECALL LATEST DATA? YES NO
SELECT : ↑↓
SET : OK
QUIT : TAPE GUIDE

continued

4 Press OK.

The latest data stored in the VCR's memory is displayed.

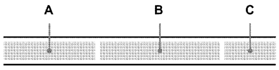
Tips

- You can store information for up to 24 programs on a single list.
- While recording, you can display the TAPE GUIDE screen using the TAPE GUIDE button. If you decide to stop recording, press TAPE GUIDE to make the TAPE GUIDE screen disappear first. Then press ■ STOP.

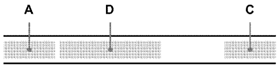
Notes

- If you start recording a program "D" from the middle of a previously recorded program "A" and into another previously recorded program "B," the Tape Guide information for the second program "B," which is recorded over, is deleted.

Originally recorded programs



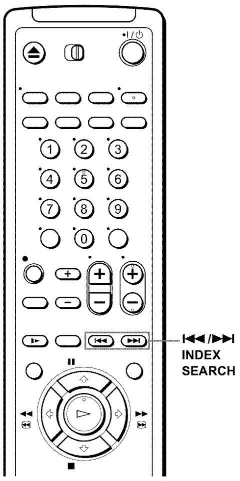
Recording the program "D" over the program "A" and "B"



- You cannot use this function unless the clock is set.
- Depending on the tape, the total or remaining time may not appear correctly.
- If many short programs are recorded on a tape, multiple programs may be included in a single block. In this case, only the latest program information will appear in the TAPE GUIDE screen.
- If you use the index search function (see page 89), the program played back may not coincide with the latest program information.
- Blank time is measured from the end of the last recorded program to the end of the tape. However, if you eject the tape and then make a new recording on the same tape, the original recorded program(s) is (are) displayed as a blank space.
- If no information is stored in the VCR's memory, NO DATA appears in the TAPE GUIDE screen.
- The station ID appears on the TV screen only when you complete Smart Channel Mapping and the VCR receives the program information signal (SLV-N80 only) (see page 52).

Searching using the index function

The VCR automatically marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording.

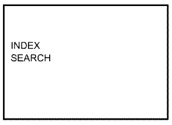


1 Insert an indexed tape into the VCR.

2 Press I◀◀/▶▶I INDEX SEARCH.

- To search ahead, press ▶▶I INDEX SEARCH.
- To search backwards, press I◀◀ INDEX SEARCH.

The VCR starts searching, and playback starts automatically from that point.



To stop searching

Press ■ STOP.

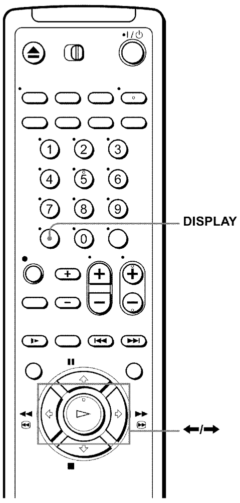
Note

- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

Searching for a selected point on the tape

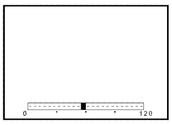
You can easily find a specific point by moving the pointer on the TV screen.

The VCR fast-forwards or rewinds to the point you indicate and starts playback automatically.



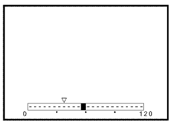
1 Press DISPLAY repeatedly until the bar indication appears on the TV screen.

A cursor (■) indicating the current position of the tape appears on the bar indication. If the cursor does not appear, play the tape a few moments (by pressing ▷ PLAY, ▶▶⏩ FF, or ◀◀⏪ REW) until the cursor appears.



2 Press ←/→ to move the pointer (∇) to the point where you want to start playback.

The VCR starts searching and the cursor (■) moves toward the pointer. When the VCR locates the marked point, playback starts.



To cancel searching

Press ▷ PLAY or ■ STOP.

To turn off the bar indication

Press DISPLAY again.

Notes

- The figure on the bar indication represents the total time length of the inserted tape as shown below.
  The total time length may not be displayed correctly for:
  – Tapes other than T-60, T-120, or T-160.
  – Tapes recorded in more than one tape speed mode.

Tape type	Total time length		
	SP	LP	EP
T-60 or shorter	60	120	180
from T-80 to T-140	120	240	360
T-160 or longer	160	320	480

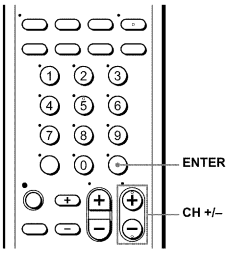
- If you move the pointer (∇) on the bar indication while searching, the VCR searches for the new reset point.
- With the bar indication on, the ▶▶⏩ FF/ → and ◀◀⏪ REW/ ← buttons on the remote commander work only for moving the pointer (∇), while the ▶▶⏩ FF and ◀◀⏪ REW buttons on the VCR are used for normal tape operation. Note, however, if you press these buttons on the VCR, searching is canceled.

Locating a channel by Station ID (SLV-N80 only)

You can select a TV program using the station's ID.

Before you start...

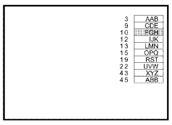
- Set FAVORITE CH to OFF in the ADVANCED OPTIONS menu (page 98).



1 Turn on your TV and set it to the video channel.

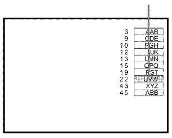
2 Press ENTER.

The station ID appears on the TV screen.



3	AAB
9	CDE
10	FGH
12	IJK
13	LMN
15	OPQ
19	RST
22	UVW
43	XYZ
45	ABB

3 Press CH +/– to select the station ID you want.



The selected station ID

3	AAB
9	CDE
10	FGH
12	IJK
13	LMN
15	OPQ
19	RST
22	UVW
43	XYZ
45	ABB

4 Press ENTER.

Note

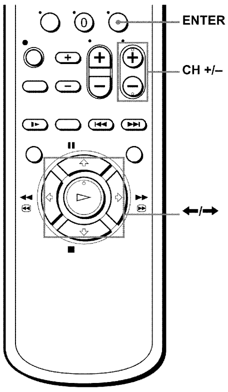
- If the TV channel has no station ID, the channel number appears on the TV screen.

Creating a favorite channel list with Station ID (SLV-N80 only)

You can create your favorite channel list of TV channels with Station ID. You can store up to 10 channels with Station ID and select the channel from your favorite channel list.

Before you start...

- Set FAVORITE CH to ON in the ADVANCED OPTIONS menu (page 98).

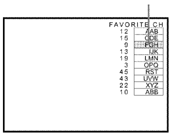


Creating your favorite channel list

1 Press ENTER.

The FAVORITE CH screen appears on the TV screen.

2 Press CH +/– to select the station ID you want to replace.

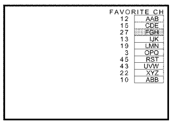


The selected station ID

FAVORITE CH	
12	AAB
15	CDE
9	FGH
13	IJK
19	LMN
3	OPQ
45	RST
43	UVW
22	XYZ
10	ABB

continued

3 Press ←/→ to select the station ID you want to set.



FAVORITE CH	
12	AAB
15	CDE
27	FGH
13	IJK
19	LMN
3	OPQ
45	RST
43	UVW
22	XYZ
10	ABB

4 Repeat steps 2 and 3 to set the station IDs as needed.

5 Press ENTER.

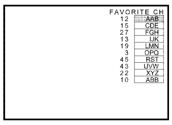
Selecting a channel from your favorite channel list

1 Turn on your TV and set it to the video channel.

To choose a channel from a cable box, turn the cable box on.

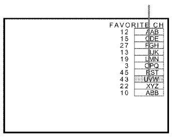
2 Press ENTER.

Your FAVORITE CH screen appears on the TV screen.



FAVORITE CH	
12	AAB
15	CDE
27	FGH
13	IJK
19	LMN
3	OPQ
45	RST
43	UVW
22	XYZ
10	ABB

3 Press CH +/– to select the station ID you want to select.



The selected station ID

FAVORITE CH	
12	AAB
15	CDE
27	FGH
13	IJK
19	LMN
3	OPQ
45	RST
43	UVW
22	XYZ
10	ABB

4 Press ENTER.

Note

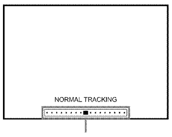
- If the TV channel has no station ID, the channel number appears on the TV screen.

Adjusting the picture

Adjusting the tracking

Although the VCR automatically adjusts the tracking when playing a tape (the ⊠ indicator flashes in the display window, then turns off), distortion may occur if the recording is in poor condition. In this case, manually adjust the tracking.

Press TRACKING +/– to display the tracking meter. The distortion should disappear as you press one of the two tracking buttons (the ⊠ indicator lights up). To resume automatic tracking adjustment, eject the tape and reinsert it.



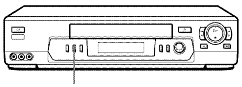
Tracking meter

About the Reality Regenerator function

The Reality Regenerator function automatically restores the picture to its original quality during playback.

To use the Reality Regenerator function, press REALITY REGENERATOR. The RR indicator lights up in the display window.

To turn it off, press REALITY REGENERATOR. The RR indicator turns off in the display window.



REALITY REGENERATOR

continued

About the Adaptive Picture Control (APC) function

The Adaptive Picture Control (APC) function automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set APC to ON in the ADVANCED OPTIONS menu (The APC indicator lights up in the display window). For details, see page 97.

APC playback

The APC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with APC.

APC recording

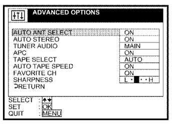
Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment is retained until the tape is ejected.

Notes

- The auto tracking adjustment cannot be guaranteed to work with tapes recorded in the LP mode on other VCRs.
- The APC function does not work if the tape speed is automatically changed from the SP to EP mode during a timer recording when AUTO TAPE SPEED is set to ON in the ADVANCED OPTIONS menu, unless the tape has been recorded in the EP mode with the APC function.
- There is a delay of about ten seconds before the VCR actually starts recording while the VCR analyzes the tape. To avoid the delay, first set the VCR to recording pause (the APC indicator flashes slowly) and press ● REC to have the VCR analyze the tape (the APC indicator flashes rapidly) and return to recording pause. After the APC indicator stops flashing, press ❚❚ PAUSE to start recording immediately.
  If you want to start recording quickly without using the APC function, first set the VCR to recording pause (the APC indicator flashes slowly) and press ❚❚ PAUSE again to start recording.

Changing menu options

1 Press MENU, then select ADVANCED OPTIONS and press OK.



ADVANCED OPTIONS

AUTO ANT SELECT ON
AUTO STEREO ON
TUNER AUDIO MAIN
APC ON
TAPE SELECT AUTO
AUTO TAPE SPEED ON
FAVORITE CH ON
SHARPNESS L · █ · · H
↻RETURN

SELECT : ↑↓
SET : OK
QUIT : MENU

2 Press ↑/↓ to highlight the option to change, then press OK.

3 Press ↑/↓ to change the setting, then press OK.

To adjust the sharpness, press ←/→ and press OK.

4 Press MENU to return to the original screen.

Menu choices

Initial settings are indicated in bold print.

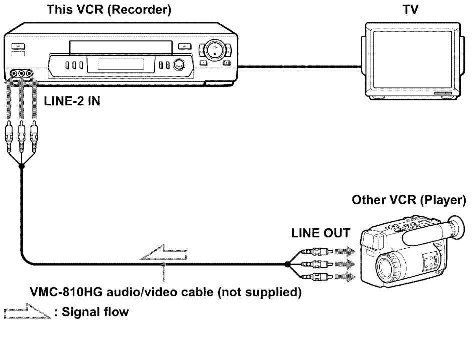
Menu option	Set this option to
AUTO ANT SELECT	• **ON** if your TV is connected only to VHF/UHF OUT on the VCR. To play a tape, set the TV to the VCR channel (channel 3 or 4). • OFF if your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR. To play a tape, set the TV to the VCR input.
AUTO STEREO	• **ON** to receive stereo programs. • OFF to reduce noise. The sound changes to monaural.
TUNER AUDIO	• **MAIN** to record the main sound on both hi-fi and normal audio tracks. • SAP to record the SAP (Second Audio Program) sound on both hi-fi and normal audio tracks.
APC	• **ON** to switch on the APC (Adaptive Picture Control) function and improve picture quality. • OFF to switch off APC.
TAPE SELECT	• **AUTO** when using a T-160 length tape or any tape shorter than a T-140 length tape. • 180 when using a T-140 or T-180 length tape. For details, see page 66.
AUTO TAPE SPEED	• **ON** to change the timer recording tape speed automatically to the EP mode when the remaining tape length becomes shorter than the recording time. To operate AUTO TAPE SPEED, set TAPE SELECT correctly. • OFF to keep the same tape speed.

continued

Menu option	Set this option to
FAVORITE CH (SLV-N80 only)	• **ON** when using favorite channel list. • OFF when using station ID list. For details, see pages 92 and 93.
SHARPNESS	• L (Low) through H (High) to adjust the sharpness of the picture. Select L to turn off the sharpness control.

Editing with another VCR

How to connect to record on this VCR



If the other VCR has a CONTROL S OUT jack for synchronized editing (SLV-N80 only)

Connect to record on this VCR, then connect the VCRs via the CONTROL S jacks. The CONTROL S connection lets you control (pause and release pause) both VCRs from the recording VCR.

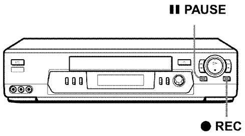
Notes

- Make sure you connect the plugs to jacks of the same color.
- If the other VCR is a monaural type and connected to this VCR's LINE-2 IN jacks, connect the audio plug to the AUDIO L (white) jack. The sound is recorded on both right and left channels. If you connect to the AUDIO R (red) jack, the sound is recorded only on the right channel.
- If you connected this VCR to both the LINE IN and LINE OUT jacks of the other VCR, select the input correctly to prevent a humming noise.
- You can use the LINE-1 IN jacks for editing. If the other VCR is a monaural type, the sound is recorded only on the channel whose jack is connected to the audio plug. To record on both right and left channels, connect the audio plugs to the AUDIO R/L jacks using a VMC-910HG audio/video cable (not supplied).
- (SLV-N80 only)
  If the CONTROL S IN jack is used for S-Link™ (A/V bus control) connection with a TV, the CONTROL S connection cannot be used for editing.

continued

Operation (when recording on this VCR)

Before you start editing



- Turn on your TV and set it to the video channel.
- Press INPUT SELECT or CHANNEL +/– to display “L2” (or “L1”) in the display window.
- Press SP/EP to select the tape speed, SP or EP.

1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.

2 Insert a tape into this (recording) VCR. Search for the point to start recording and press ❚❚ PAUSE.

3 Press ● REC on this VCR to set it to recording pause.

4 To start editing, press the ❚❚ PAUSE buttons on both VCRs at the same time.

To stop editing

Press the ■ STOP buttons on both VCRs.

Tip

- To cut out unwanted scenes while editing, press ❚❚ PAUSE on this VCR when an unwanted scene begins. When it ends, press ❚❚ PAUSE again to resume recording.

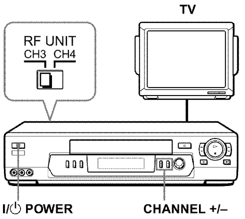
Note

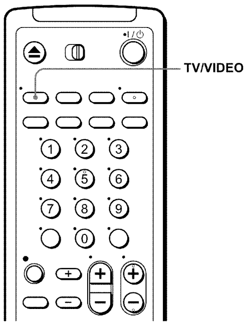
- If you start recording following the procedure above, the VCR won’t start recording with the APC function. To record a tape with the APC function, press ● REC again during recording pause in step 3 so that the VCR analyzes the tape. Then, press ❚❚ PAUSE after the APC indicator stops flashing to start recording. If you press ❚❚ PAUSE before the APC indicator stops flashing, the APC function is canceled.

General setup information

Setting the RF unit

When connecting the VCR to the TV using only the antenna cable, you must set the RF UNIT switch on the rear of the VCR so that the TV can receive the correct signal from the VCR.





1 Set the RF UNIT switch on the rear of the VCR to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel.

2 Press I/⏻ POWER to turn on the VCR.

3 Press TV/VIDEO to turn on the VIDEO indicator in the VCR’s display window.

4 Press CHANNEL +/– to display a channel number in the display window.

Select an active channel number in your area.

5 Turn on your TV and set it to the channel you selected in step 1 (channel 3 or 4).

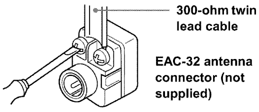
The channel you selected in step 4 appears on the TV screen. If the channels change when you press CHANNEL +/–, you have made the correct setting.

Whenever you use the VCR, set the TV to the channel selected in step 1.

continued

Attaching the external antenna connector

When using a 300-ohm twin lead cable for a VHF/UHF antenna, use the EAC-32 antenna connector (not supplied) to connect the antenna to the VCR.



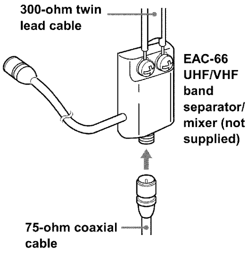
1 Loosen the screws on the antenna connector.

2 Wind the twin leads around the screws on the antenna connector.

3 Retighten the screws.

Attaching a UHF/VHF band mixer

When using both a 75-ohm coaxial cable and a 300-ohm twin lead cable for a VHF/UHF antenna, use the EAC-66 UHF/VHF band separator/mixer (not supplied) to connect the antenna to the VCR.



1 Loosen the screws on the mixer.

2 Wind the twin leads around the screws on the mixer.

3 Retighten the screws.

4 Connect the 75-ohm coaxial cable to the mixer.

Troubleshooting

If you have any questions or problems not covered below, please consult your nearest Sony dealer.

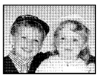
	Symptom	Remedy
Power	The I/⏻ switch does not function.	• Connect the AC power cord securely. • Make sure the VCR is not locked. To unlock, hold down I/⏻ POWER on the VCR until the O‒ₙ indicator disappears.
	The power is turned on but the VCR does not operate.	• Moisture condensation has occurred. Turn the power off, unplug the AC power cord and leave the VCR to dry for over three hours.
Clock	The clock has stopped and “–:– –” appears in the display window.	• The clock stops if the VCR is disconnected from the wall outlet for more than one hour. Reset the clock (and timer).
	“ACS” flashes in the display window.	• The VCR is searching for a time signal. If channels in your area do not carry time signals, set the clock manually.
Playback	The playback picture does not appear on the TV screen.	• Make sure the TV is set to the channel for the VCR. If you are using a monitor, set it to video input.
	The picture is not clear.	• Adjust the tracking with the TRACKING +/– buttons. • The video heads are dirty (see the last page of “Troubleshooting”). Clean the video heads using the Sony T-25CLD, T-25CLDR, or T-25CLW video head cleaning cassette. If these cleaning cassettes are not available in your area, have the heads cleaned at your nearest Sony dealer (a standard service fee will be charged). Do not use a commercially available liquid type cleaning cassette other than Sony’s, as it may damage the video heads. • The video heads may have to be replaced. Consult your local Sony dealer for more information.
	The picture rolls vertically during picture search.	• Adjust the vertical hold control on the TV or monitor.
	The picture has no sound.	• The tape is defective. • If you made A/V connections, check the audio cable connection.
Recording	A TV program does not appear on the TV screen.	• Make sure the TV is set to the channel for the VCR. If you are using a monitor, set it to video input. • Select the correct source with the INPUT SELECT or CH +/– buttons. Select a channel number when recording TV programs; select “L1” or “L2” when recording from other equipment.
	TV reception is poor.	• Adjust the TV antenna.
	The tape starts playing as soon as it is inserted.	• The safety tab has been removed. To record on this tape, cover the tab hole.
	The tape is ejected when you press ● REC.	• Check that the safety tab has not been removed.
	Nothing happens when you press ● REC.	• Make sure the tape is not at its end.

continued

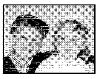
	Symptom	Remedy
Timer recording	The timer does not operate.	• Check that the clock is set. • Make sure a tape has been inserted. • Check that the safety tab has not been removed. • Make sure the tape is not at its end. • Make sure a program has been set for timer recording. • Make sure your timer settings are past the current time. • Check that the cable box is turned on. • The clock stops if the VCR is disconnected from the wall outlet for more than one hour. Reset the clock and timer. • When you use a Cable Mouse, make sure the CABLE BOX CONTROL option is set to ON. • Turn the power off and unplug the AC power cord.
Others	A tape cannot be inserted.	• Check that a tape isn't already in the tape compartment.
	The remote commander does not function.	• Make sure you are pointing the remote commander at the remote sensor on the VCR. • Replace all the batteries in the remote commander with new ones if they are weak. • Make sure the TV / VIDEO switch is set correctly. • If you are not using S-Link™, make sure that both miniplugs are unconnected.
	The channels on the VCR cannot be changed.	• Make sure the CABLE BOX CONTROL option is set to OFF.
	The tracking meter does not appear on the screen.	• The recording condition of the tape is very poor and tracking cannot be adjusted.
	You cannot control other TVs or AV receivers.	• Set your TV's or AV receiver's code number. The code number may change when you replace the batteries of the remote commander.
	The VCR needs to be cleaned.	• Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine.

Symptoms caused by contaminated video heads

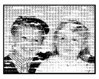
- **Normal picture**



- **Rough picture**



- **Unclear picture**



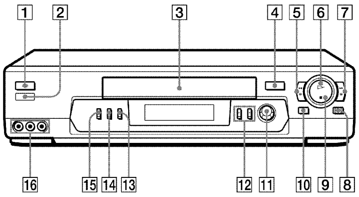
- **No picture (or black & white screen appears)**

initial contamination → **terminal**

Index to parts and controls

Refer to the pages indicated in parentheses ( ) for details.

Front panel



1 I/⏻ POWER switch (74)

2 Remote sensor (5)

3 Tape compartment

4 ⏏ EJECT button (63)

5 ◀◀ ⏪ REW (rewind) button (63) (79)

6 ▷ PLAY button (63) (79)

7 ▶▶ ⏩ FF (fast-forward) button (63) (79)

8 ● REC (record) button (66) (81) (100)

9 ■ STOP button (63) (100)

10 ❚❚ PAUSE button (63) (100)

11 DIAL TIMER control (68)

12 CHANNEL/TRACKING +/– buttons (66) (95)

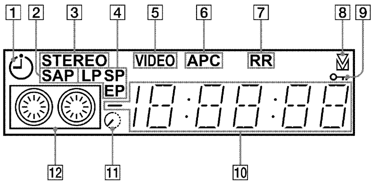
13 INPUT SELECT button (67)

14 REALITY REGENERATOR button (95)

15 EASY SET UP button (12) (15) (18) (21) (24) (27)

16 LINE-2 IN VIDEO/AUDIO L/R jacks (99)

Display window



1 Timer indicator (70) (74) (77)

2 SAP (Second Audio Program) indicator (84)

3 STEREO indicator (84)

4 Tape speed indicator (66)

5 VIDEO indicator (67) (101)

6 APC (Adaptive Picture Control) indicator (96)

7 RR (Reality Regenerator) indicator (95)

8 Tracking indicator (95)

9 Child Lock indicator (71) (75)

10 Time counter/clock/line/channel indicator (63) (66) (100)

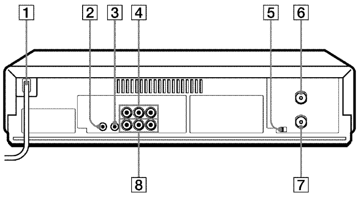
11 Remaining tape length indicator (66)

12 Tape/recording indicator (66)

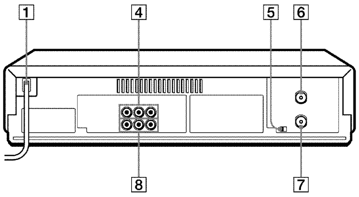
continued

Rear panel

SLV-N80



SLV-N70



1 AC power cord (8)

2 S-LINK (CONTROL S IN) jack (10) (99) (SLV-N80 only)

3 CABLE BOX CONTROL (CONTROL S OUT) jack (11) (14) (SLV-N80 only)

4 LINE-1 IN AUDIO R/L/VIDEO jacks (14) (99)

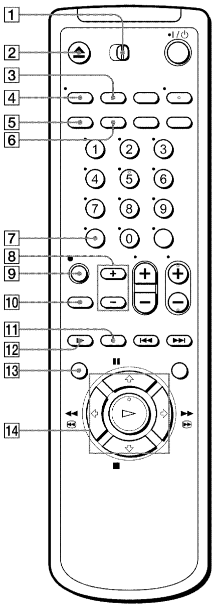
5 RF (Radio Frequency) UNIT switch (101)

6 VHF/UHF IN connector (11) (14) (17) (20) (23) (26)

7 VHF/UHF OUT connector (11) (14) (17) (20) (23) (26)

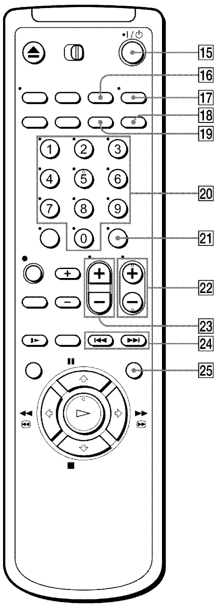
8 LINE OUT AUDIO R/L/VIDEO jacks (9)

Remote commander



1. TV / VIDEO switch (5)
2. ⏏ EJECT button (63)
3. INPUT SELECT button (67) (100)
4. TV/VIDEO button (6) (67)
5. TAPE GUIDE button (86) (SLV-N80 only)
6. SP (Standard Play)/EP (Extended Play) button (66)
7. DISPLAY button (66) (90)
8. RECEIVER VOL (volume) +/– buttons (5)
9. ● REC (record) button (66) (81)
10. MUTING button (5)
11. ×2 button (79)
12. I► SLOW button (79)
13. MENU button (30) (76) (82)
14. II PAUSE/⬆ button (30) (63)
    ■ STOP/⬇ button (30) (63)
    ◀◀ ⏪ REW (rewind)/ ⬅ button (63) (79)
    ▶▶ ⏩ FF (fast-forward)/ ➡ button (63) (79)
    ▷ PLAY/OK button (30) (63)

continued



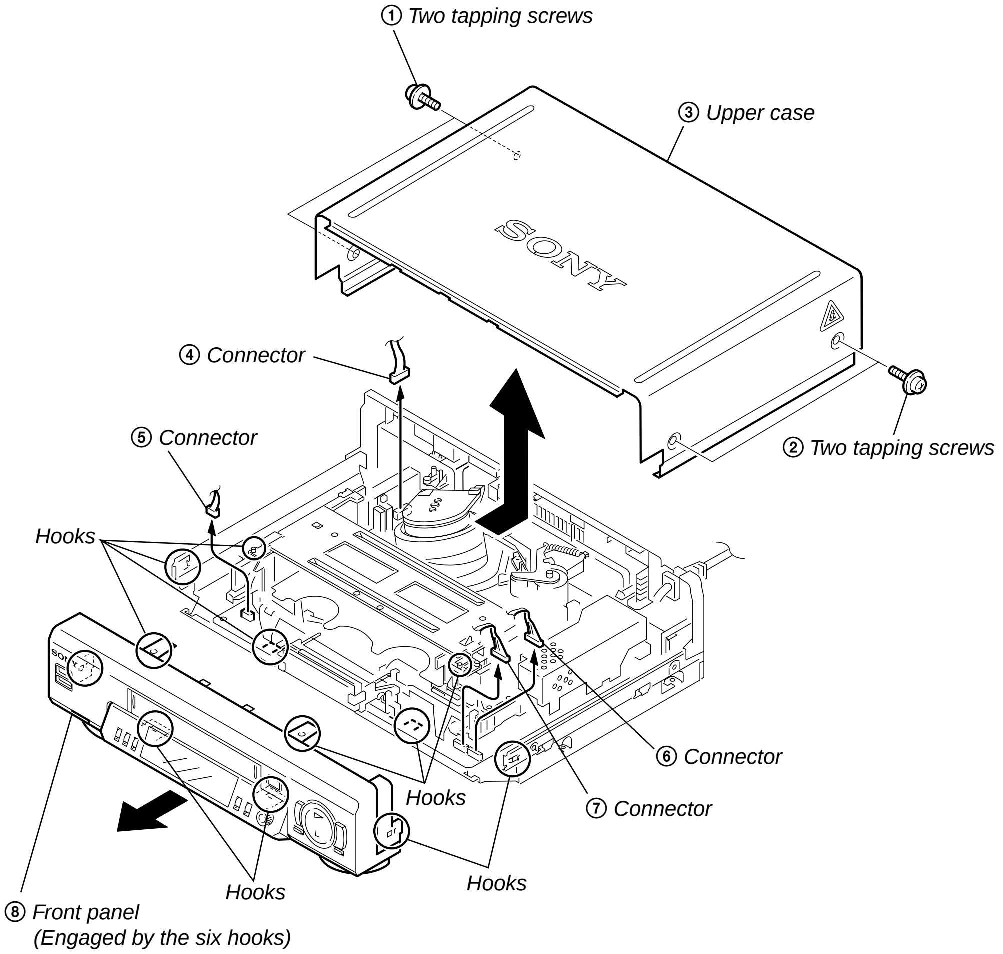
15. I/⏻ (power) switch (6) (74)
16. COUNTER/REMAIN button (66)
17. AUDIO MONITOR button (84)
18. VCR Plus+ button (73)
19. CLEAR button (63) (74) (83)
20. Number buttons (74)
21. ENTER button (74) (92) (93)
22. CH (channel) +/– buttons (6) (66)
23. VOL (volume) +/– buttons (6)
24. ⏮ / ⏭ INDEX SEARCH buttons (89)
25. COMMERCIAL PASS button (63)

MEMO

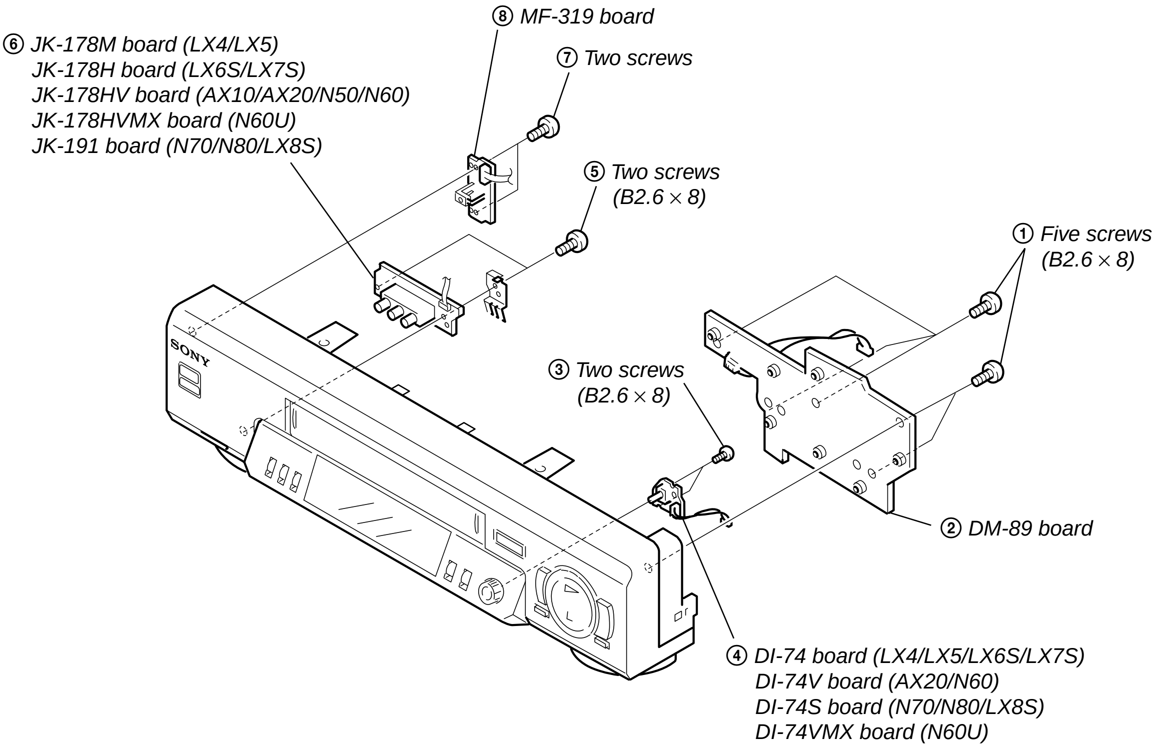
SECTION 2
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

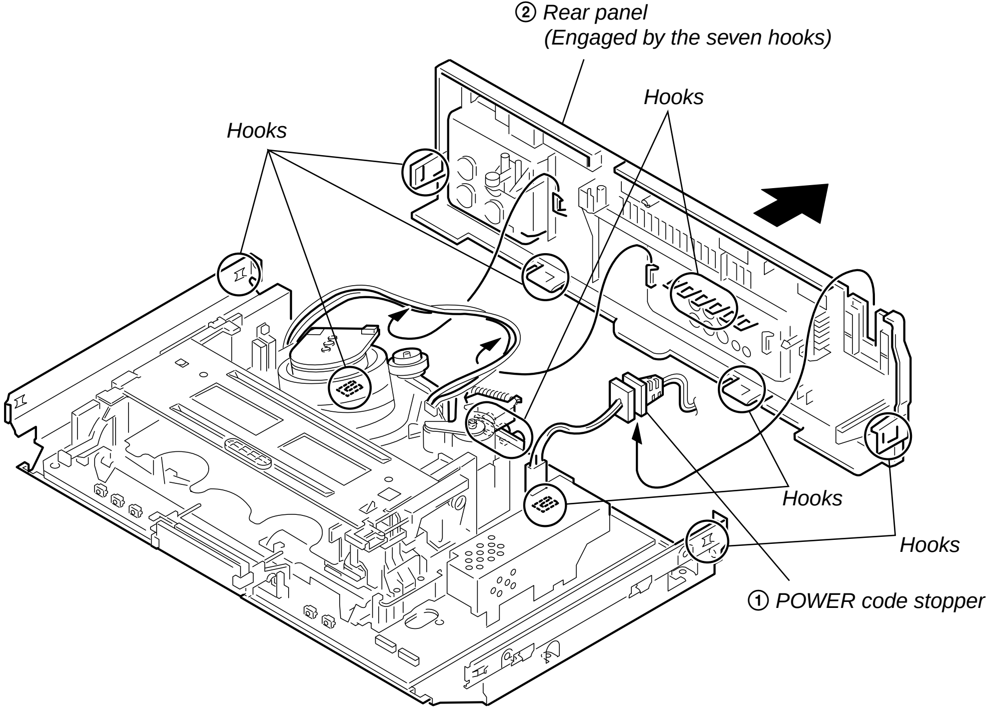
2-1. CASE, FRONT PANEL BLOCK ASSEMBLY


① Two tapping screws
③ Upper case
④ Connector
⑤ Connector
② Two tapping screws
Hooks
⑥ Connector
Hooks
⑦ Connector
Hooks
Hooks
⑧ Front panel
(Engaged by the six hooks)

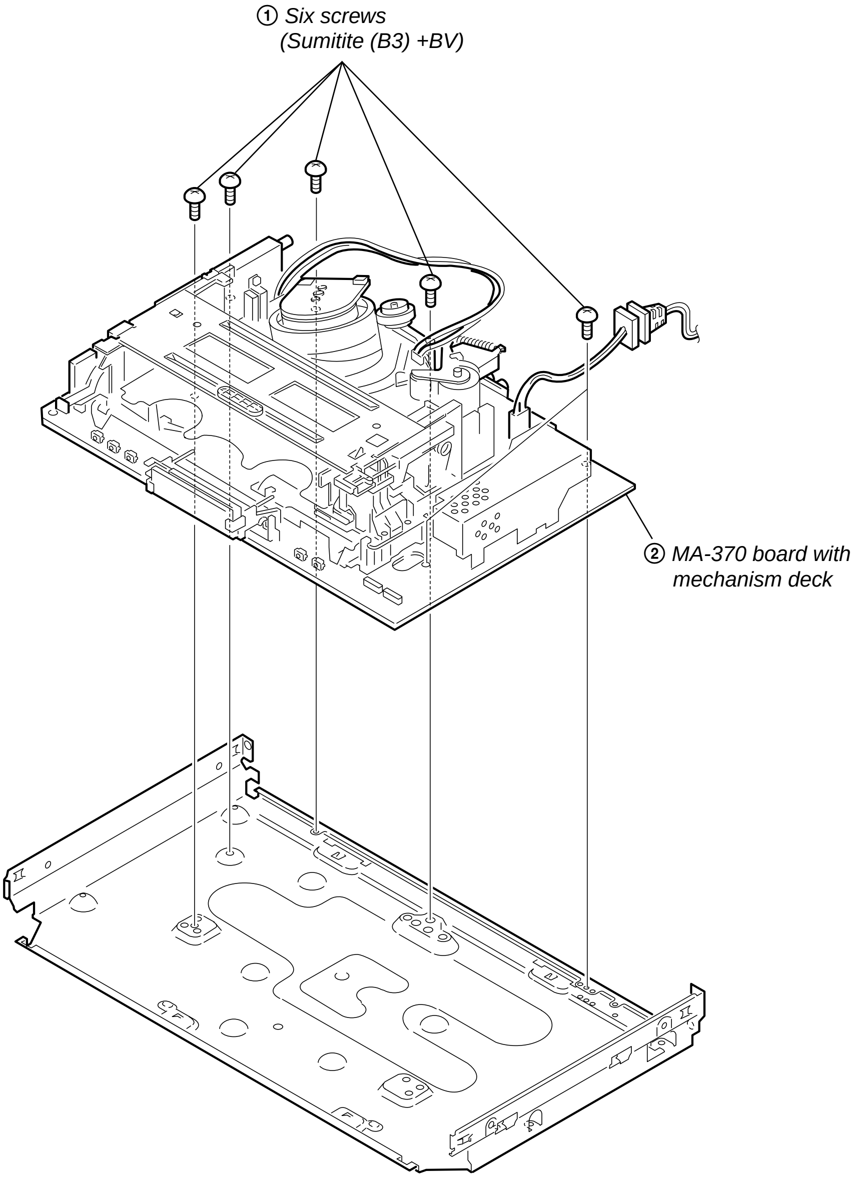
2-2. DM-89 BOARD, DI-74 BOARD, JK-178 BOARD, MF-319 BOARD


⑧ MF-319 board
⑥ JK-178M board (LX4/LX5)
JK-178H board (LX6S/LX7S)
JK-178HV board (AX10/AX20/N50/N60)
JK-178HVMX board (N60U)
JK-191 board (N70/N80/LX8S)
⑦ Two screws
⑤ Two screws
(B2.6 × 8)
① Five screws
(B2.6 × 8)
③ Two screws
(B2.6 × 8)
② DM-89 board
④ DI-74 board (LX4/LX5/LX6S/LX7S)
DI-74V board (AX20/N60)
DI-74S board (N70/N80/LX8S)
DI-74VMX board (N60U)

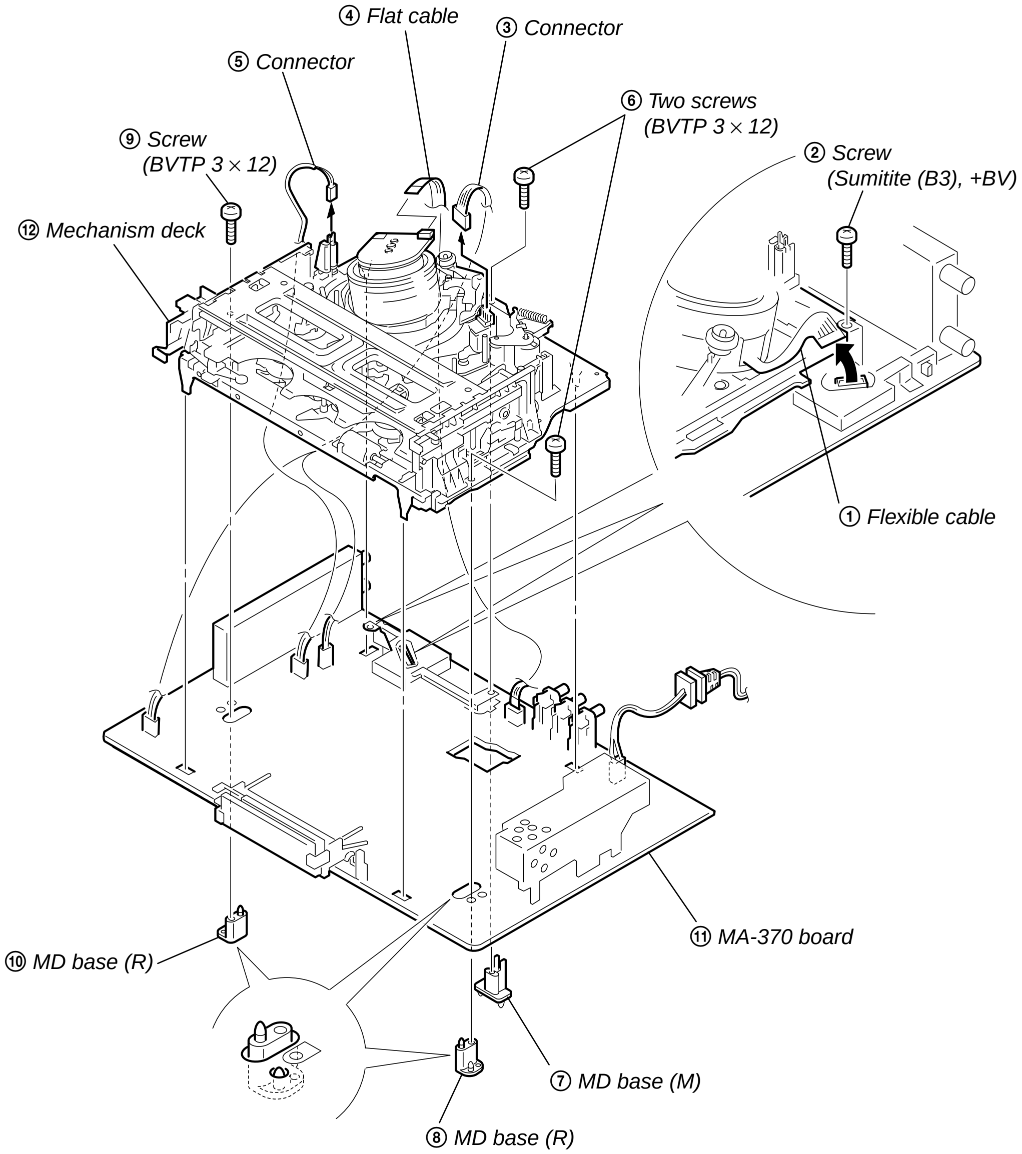
2-3. REAR PANEL


② Rear panel
(Engaged by the seven hooks)
Hooks
Hooks
Hooks
Hooks
① POWER code stopper

2-4. MA-370 BOARD

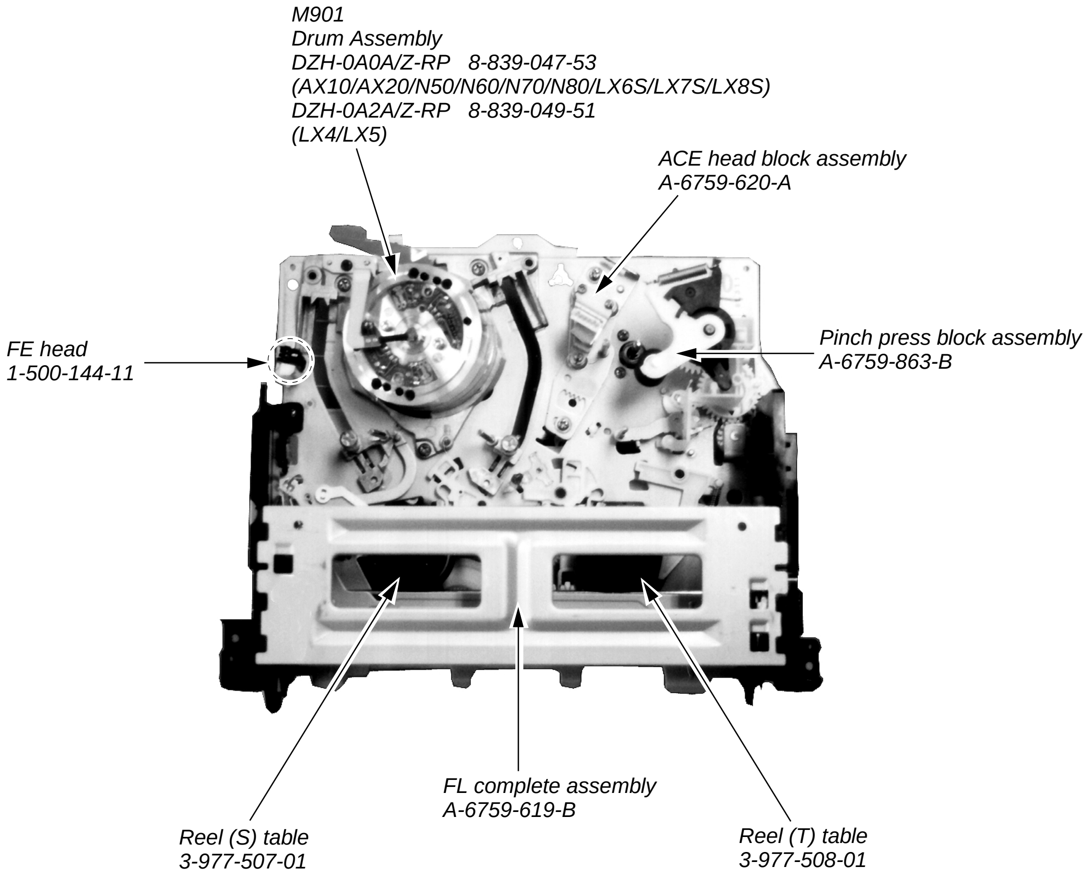

① Six screws
(Sumitite (B3) +BV)
② MA-370 board with
mechanism deck

2-5. MECHANISM DECK

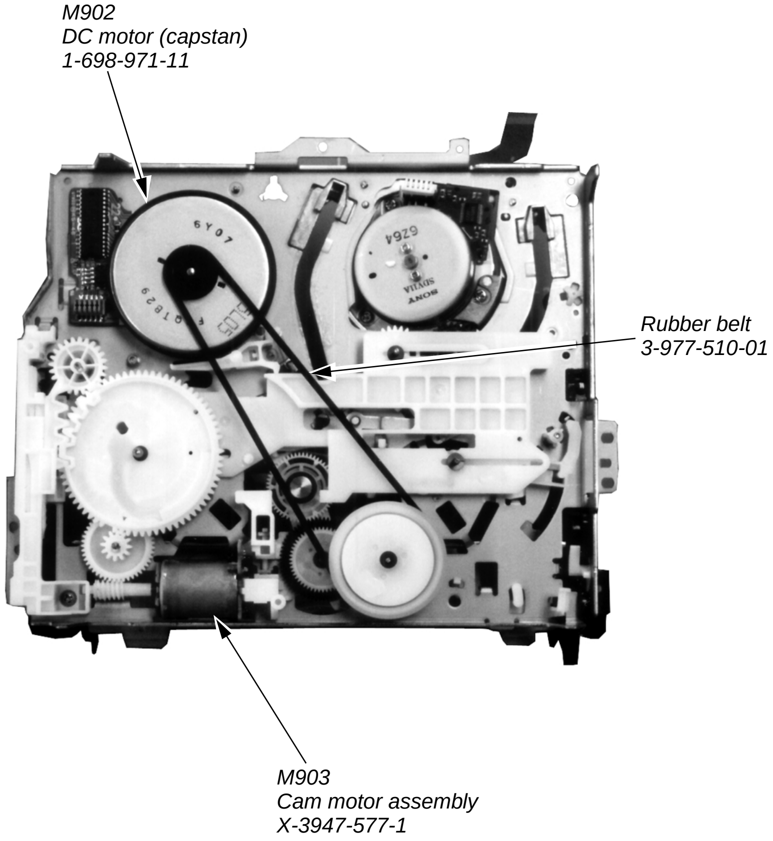

④ Flat cable
③ Connector
⑤ Connector
⑥ Two screws
(BVTP 3 × 12)
⑨ Screw
(BVTP 3 × 12)
② Screw
(Sumitite (B3), +BV)
⑫ Mechanism deck
① Flexible cable
⑪ MA-370 board
⑩ MD base (R)
⑦ MD base (M)
⑧ MD base (R)

2-6. INTERNAL VIEWS

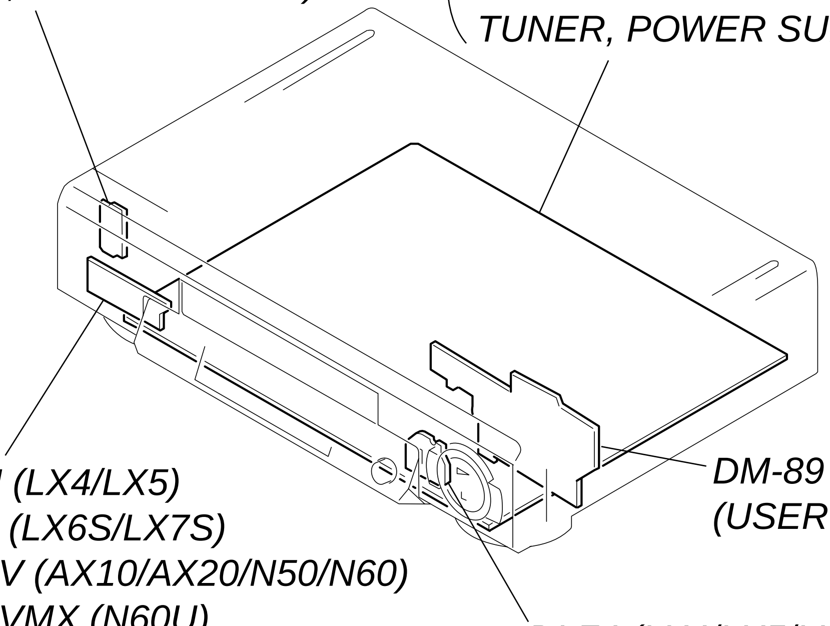
— Top View —


M901
Drum Assembly
DZH-0A0A/Z-RP 8-839-047-53
(AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S)
DZH-0A2A/Z-RP 8-839-049-51
(LX4/LX5)
ACE head block assembly
A-6759-620-A
FE head
1-500-144-11
Pinch press block assembly
A-6759-863-B
FL complete assembly
A-6759-619-B
Reel (S) table
3-977-507-01
Reel (T) table
3-977-508-01

— Bottom View —


M902
DC motor (capstan)
1-698-971-11
Rubber belt
3-977-510-01
M903
Cam motor assembly
X-3947-577-1

2-7. CIRCUIT BOARDS LOCATION



MA-370N3S (LX4/LX5MX/LX5PA/
LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/
LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
(VIDEO, AUDIO,
SERVO/SYSTEM CONTROL,
TUNER, POWER SUPPLY)

MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)

JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)

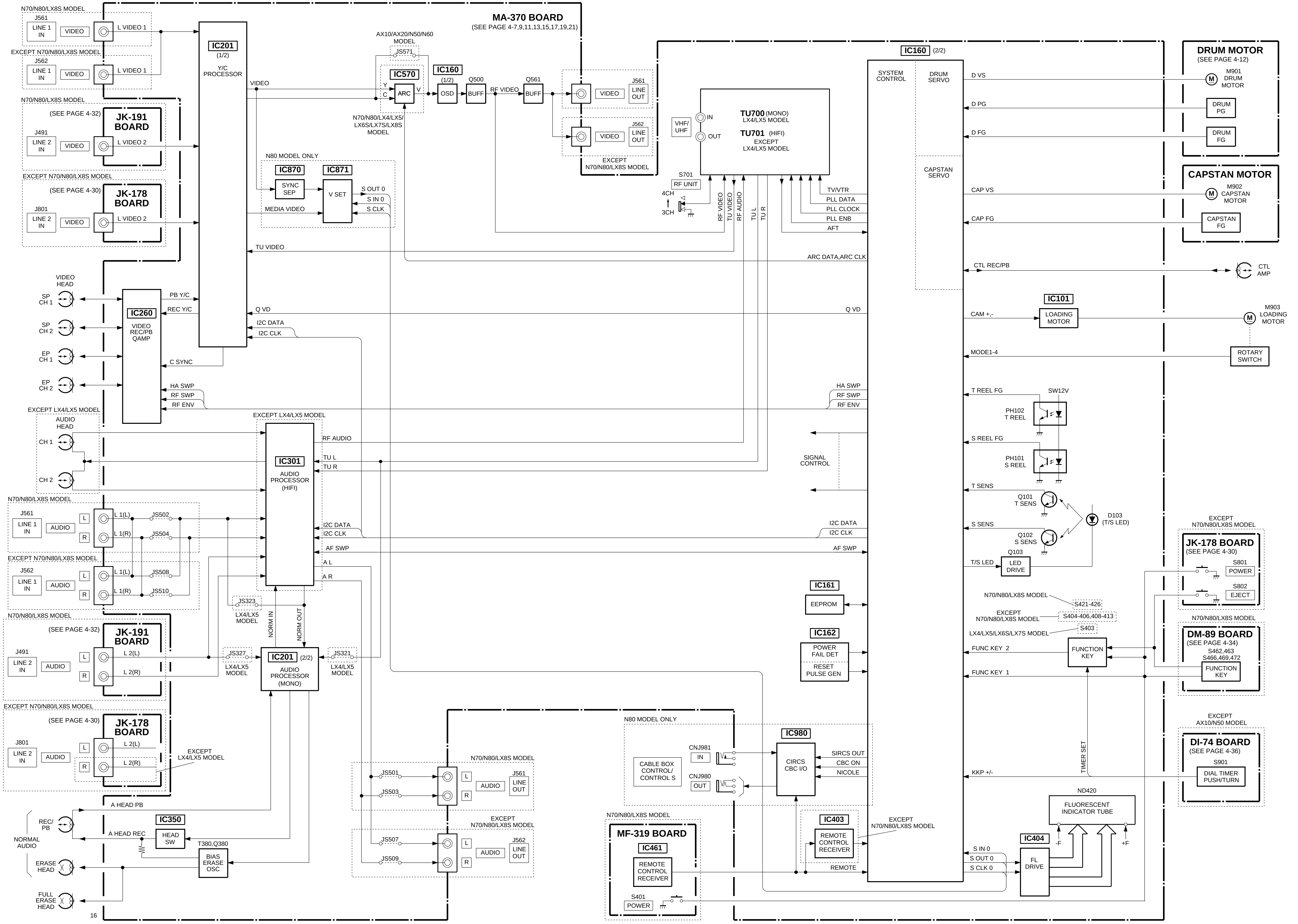
DM-89 (N70/N80/LX8S)
(USER CONTROL)

DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)

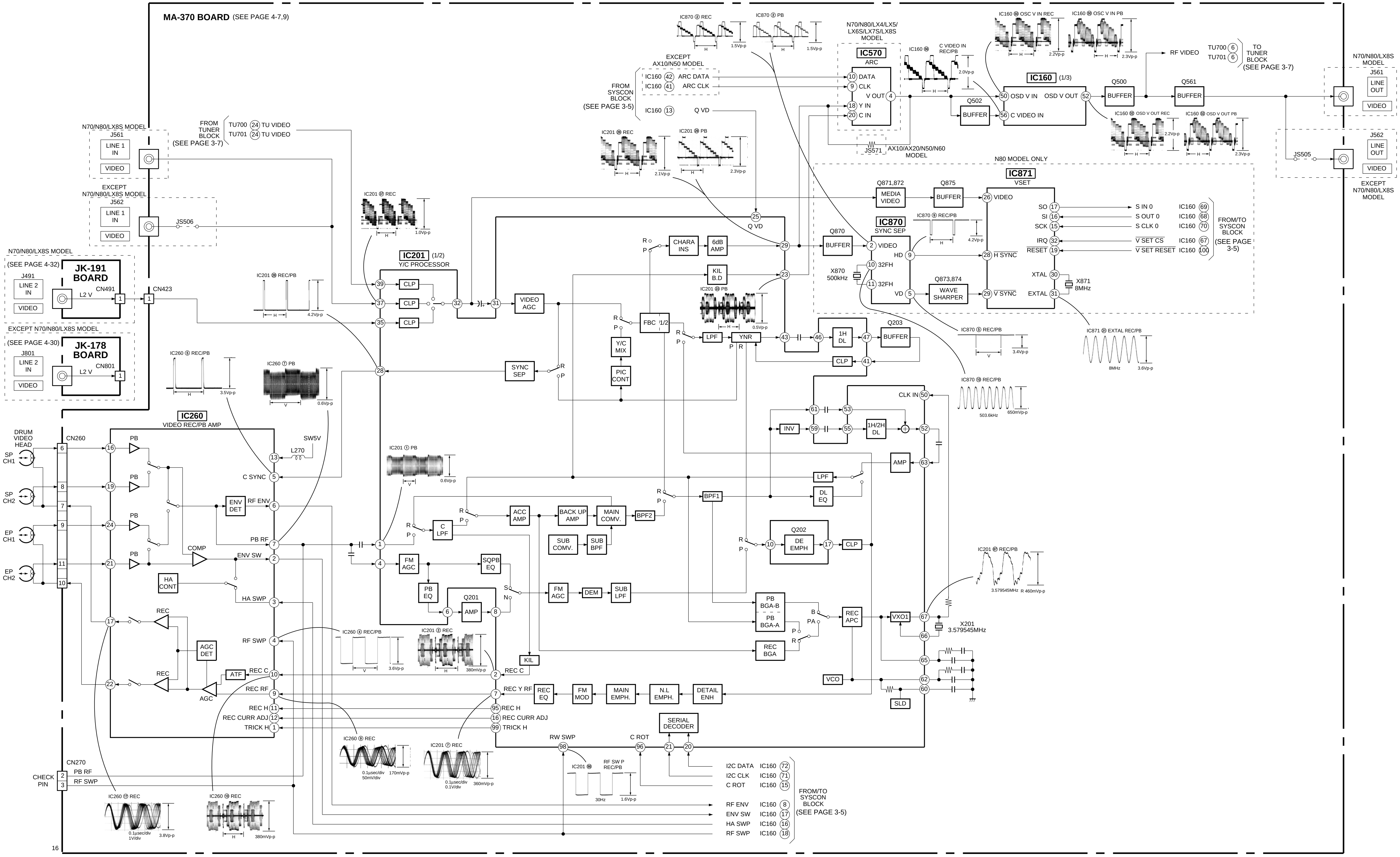
MEMO

SECTION 3
BLOCK DIAGRAMS

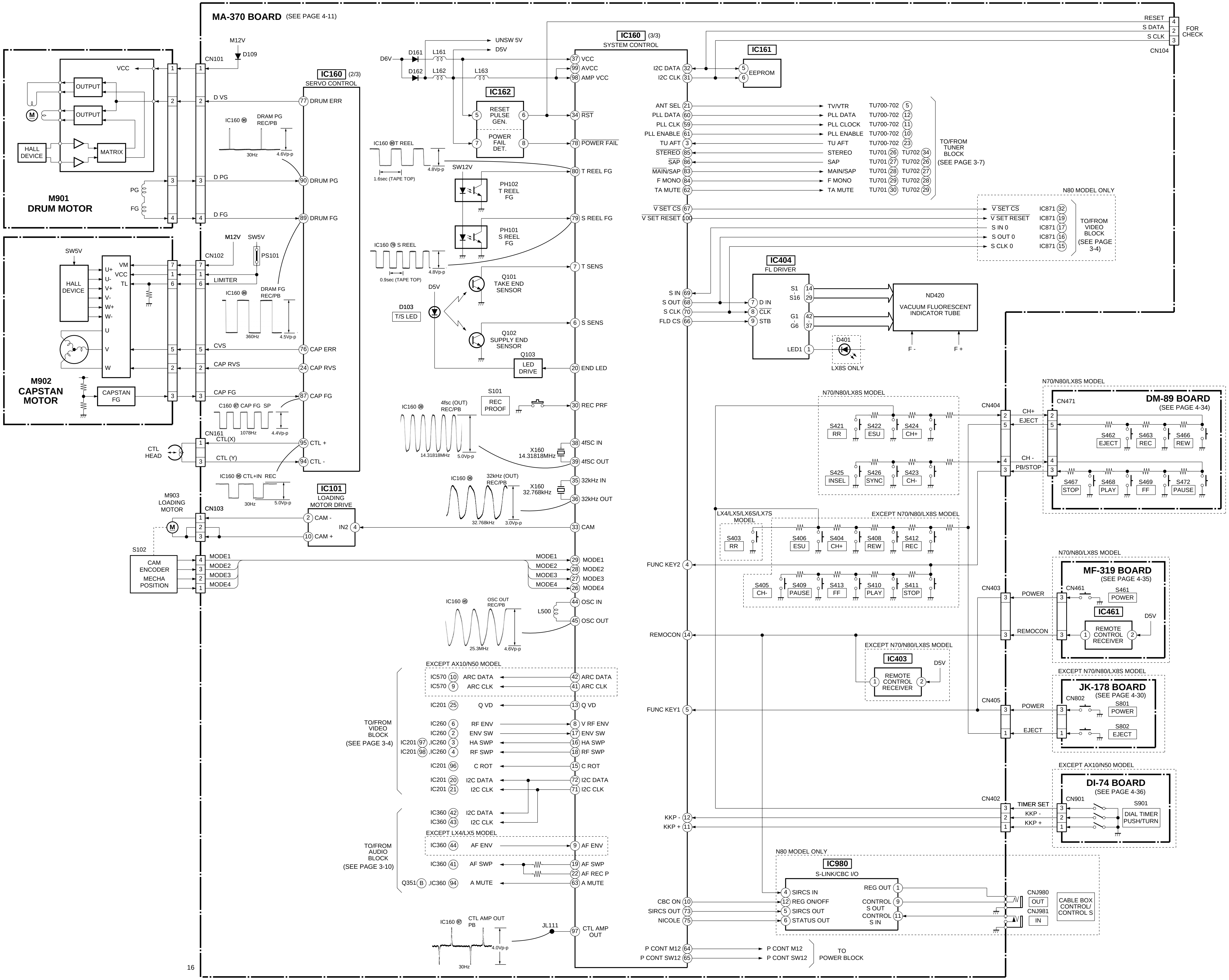
3-1. OVERALL BLOCK DIAGRAM


MA-370 BOARD
(SEE PAGE 4-7,9,11,13,15,17,19,21)
N70/N80/LX8S MODEL
J561
LINE 1 IN
VIDEO
L VIDEO 1
EXCEPT N70/N80/LX8S MODEL
J562
JK-191 BOARD
(SEE PAGE 4-32)
J491
LINE 2 IN
L VIDEO 2
JK-178 BOARD
(SEE PAGE 4-30)
J801
IC201 (1/2)
Y/C PROCESSOR
VIDEO
AX10/AX20/N50/N60 MODEL
JS571
IC570
ARC
Y
C
V
IC160 (1/2)
OSD
Q500
BUFF
RF VIDEO
Q561
BUFF
LINE OUT
EXCEPT N70/N80/LX8S MODEL
N70/N80/LX4/LX5/LX6S/LX7S/LX8S MODEL
N80 MODEL ONLY
IC870
SYNC SEP
IC871
V SET
S OUT 0
S IN 0
S CLK
MEDIA VIDEO
TU VIDEO
VHF/UHF
IN
OUT
TU700 (MONO) LX4/LX5 MODEL
TU701 (HIFI) EXCEPT LX4/LX5 MODEL
S701
RF UNIT
4CH
3CH
RF VIDEO
TU VIDEO
RF AUDIO
TU L
TU R
TV/VTR
PLL DATA
PLL CLOCK
PLL ENB
AFT
ARC DATA,ARC CLK
IC160 (2/2)
SYSTEM CONTROL
DRUM SERVO
CAPSTAN SERVO
D VS
D PG
D FG
CAP VS
CAP FG
DRUM MOTOR
(SEE PAGE 4-12)
M901 DRUM MOTOR
DRUM PG
DRUM FG
CAPSTAN MOTOR
M902 CAPSTAN MOTOR
CAPSTAN FG
CTL REC/PB
CTL AMP
VIDEO HEAD
SP CH 1
SP CH 2
EP CH 1
EP CH 2
IC260
VIDEO REC/PB QAMP
PB Y/C
REC Y/C
C SYNC
Q VD
I2C DATA
I2C CLK
HA SWP
RF SWP
RF ENV
IC101
LOADING MOTOR
CAM +,-
M903 LOADING MOTOR
MODE1-4
ROTARY SWITCH
T REEL FG
SW12V
PH102 T REEL
S REEL FG
PH101 S REEL
T SENS
Q101 T SENS
S SENS
Q102 S SENS
D103 (T/S LED)
T/S LED
Q103
LED DRIVE
EXCEPT LX4/LX5 MODEL
AUDIO HEAD
CH 1
CH 2
IC301
AUDIO PROCESSOR (HIFI)
RF AUDIO
TU L
TU R
AF SWP
A L
A R
SIGNAL CONTROL
L
R
L 1(L)
L 1(R)
JS502
JS504
JS508
JS510
AUDIO
JS323
LX4/LX5 MODEL
NORM IN
NORM OUT
L 2(L)
L 2(R)
JS327
JS321
IC201 (2/2)
AUDIO PROCESSOR (MONO)
EXCEPT LX4/LX5 MODEL
IC161
EEPROM
IC162
POWER FAIL DET
RESET PULSE GEN
EXCEPT N70/N80/LX8S MODEL
JK-178 BOARD
(SEE PAGE 4-30)
S801 POWER
S802 EJECT
N70/N80/LX8S MODEL
S421-426
S404-406,408-413
LX4/LX5/LX6S/LX7S MODEL
S403
FUNC KEY 2
FUNC KEY 1
FUNCTION KEY
DM-89 BOARD
(SEE PAGE 4-34)
S462,463 S466,469,472
FUNCTION KEY
EXCEPT AX10/N50 MODEL
DI-74 BOARD
(SEE PAGE 4-36)
S901
DIAL TIMER PUSH/TURN
TIMER SET
KKP +/-
N80 MODEL ONLY
IC980
CIRCS CBC I/O
SIRCS OUT
CBC ON
NICOLE
CNJ981 IN
CNJ980 OUT
CABLE BOX CONTROL/ CONTROL S
JS501
JS503
JS507
JS509
J561
J562
A HEAD PB
A HEAD REC
IC350
HEAD SW
T380,Q380
BIAS ERASE OSC
REC/PB
NORMAL AUDIO
ERASE HEAD
FULL ERASE HEAD
16
MF-319 BOARD
IC461
REMOTE CONTROL RECEIVER
S401
POWER
IC403
REMOTE CONTROL RECEIVER
REMOTE
ND420
FLUORESCENT INDICATOR TUBE
IC404
FL DRIVE
S IN 0
S OUT 0
S CLK 0
-F
+F

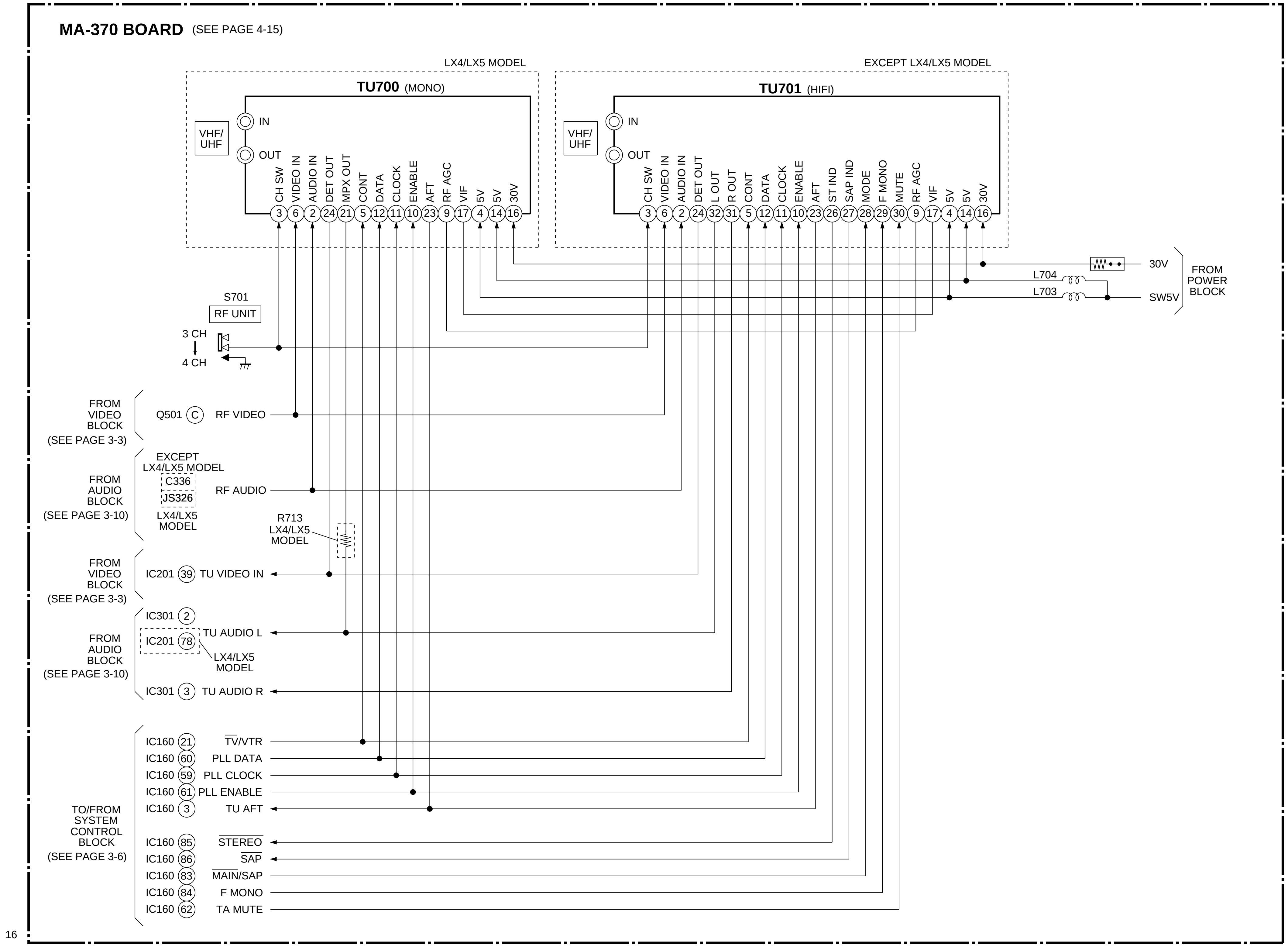
3-2. VIDEO BLOCK DIAGRAM


MA-370 BOARD (SEE PAGE 4-7,9)
IC870 ② REC
IC870 ② PB
EXCEPT AX10/N50 MODEL
FROM SYSCON BLOCK (SEE PAGE 3-5)
IC160 42 ARC DATA
IC160 41 ARC CLK
IC160 13 Q VD
N70/N80/LX4/LX5/LX6S/LX7S/LX8S MODEL
IC570
ARC
DATA
CLK
V OUT
Y IN
C IN
JS571
AX10/AX20/N50/N60 MODEL
IC160 (56) C VIDEO IN REC/PB
IC160 (50) OSC V IN REC
IC160 (50) OSC V IN PB
IC160 (1/3)
OSD V IN
OSD V OUT
C VIDEO IN
Q502
BUFFER
Q500
BUFFER
Q561
BUFFER
TU700 6
TU701 6
RF VIDEO
TO TUNER BLOCK (SEE PAGE 3-7)
N70/N80/LX8S MODEL
J561
LINE OUT
VIDEO
J562
JS505
EXCEPT N70/N80/LX8S MODEL
IC160 (52) OSD V OUT REC
IC160 (52) OSD V OUT PB
N70/N80/LX8S MODEL
J561
LINE 1 IN
VIDEO
FROM TUNER BLOCK (SEE PAGE 3-7)
TU700 24 TU VIDEO
TU701 24 TU VIDEO
EXCEPT N70/N80/LX8S MODEL
J562
LINE 1 IN
VIDEO
JS506
IC201 (29) REC
IC201 (29) PB
IC201 (37) REC
N80 MODEL ONLY
IC871
VSET
Q871,872
MEDIA VIDEO
Q875
BUFFER
VIDEO
SO
SI
SCK
IRQ
RESET
XTAL
EXTAL
H SYNC
V SYNC
S IN 0
S OUT 0
S CLK 0
V SET CS
V SET RESET
IC160 69
IC160 68
IC160 70
IC160 67
IC160 100
FROM/TO SYSCON BLOCK (SEE PAGE 3-5)
X871 8MHz
IC870
SYNC SEP
Q870
BUFFER
X870 500kHz
32FH
HD
VD
Q873,874
WAVE SHARPER
IC870 ⑥ REC/PB
IC870 ⑤ REC/PB
IC871 (31) EXTAL REC/PB
IC870 (10) REC/PB
Q VD
CHARA INS
6dB AMP
KIL B.D
IC201 (23) PB
N70/N80/LX8S MODEL
JK-191 BOARD
J491
LINE 2 IN
VIDEO
L2 V
CN491
CN423
EXCEPT N70/N80/LX8S MODEL
JK-178 BOARD
J801
LINE 2 IN
VIDEO
CN801
(SEE PAGE 4-32)
(SEE PAGE 4-30)
IC201 (35) REC/PB
IC201 (1/2)
Y/C PROCESSOR
CLP
VIDEO AGC
SYNC SEP
FBC 1/2
Y/C MIX
PIC CONT
LPF
YNR
1H DL
Q203
BUFFER
CLK IN
INV
1H/2H DL
AMP
LPF
DL EQ
BPF1
Q202
DE EMPH
IC260 ⑤ REC/PB
IC260 ⑦ PB
IC260
VIDEO REC/PB AMP
DRUM VIDEO HEAD
SP CH1
SP CH2
EP CH1
EP CH2
CN260
PB
REC
COMP
HA CONT
AGC DET
AGC
ATF
ENV DET
SW5V
L270
C SYNC
RF ENV
PB RF
ENV SW
HA SWP
RF SWP
REC C
REC RF
REC H
REC CURR ADJ
TRICK H
IC201 ① PB
C LPF
ACC AMP
BACK UP AMP
MAIN COMV.
BPF2
SUB COMV.
SUB BPF
FM AGC
SQPB EQ
PB EQ
Q201
AMP
FM AGC
DEM
SUB LPF
KIL
PB BGA-B
PB BGA-A
REC BGA
REC APC
VXO1
VCO
SLD
X201 3.579545MHz
IC201 (67) REC/PB
REC EQ
FM MOD
MAIN EMPH.
N.L EMPH.
DETAIL ENH
SERIAL DECODER
RW SWP
C ROT
REC Y RF
IC260 ④ REC/PB
IC201 ② REC
IC260 ⑧ REC
IC201 ⑦ REC
IC201 (98) RF SW P REC/PB
30Hz
IC260 (17) REC
IC260 (19) REC
CN270
CHECK PIN
PB RF
RF SWP
I2C DATA IC160 72
I2C CLK IC160 71
C ROT IC160 15
RF ENV IC160 8
ENV SW IC160 17
HA SWP IC160 16
RF SWP IC160 18
FROM/TO SYSCON BLOCK (SEE PAGE 3-5)
503.6kHz
650mVp-p
8MHz
3.6Vp-p
3.579545MHz
R 460mVp-p

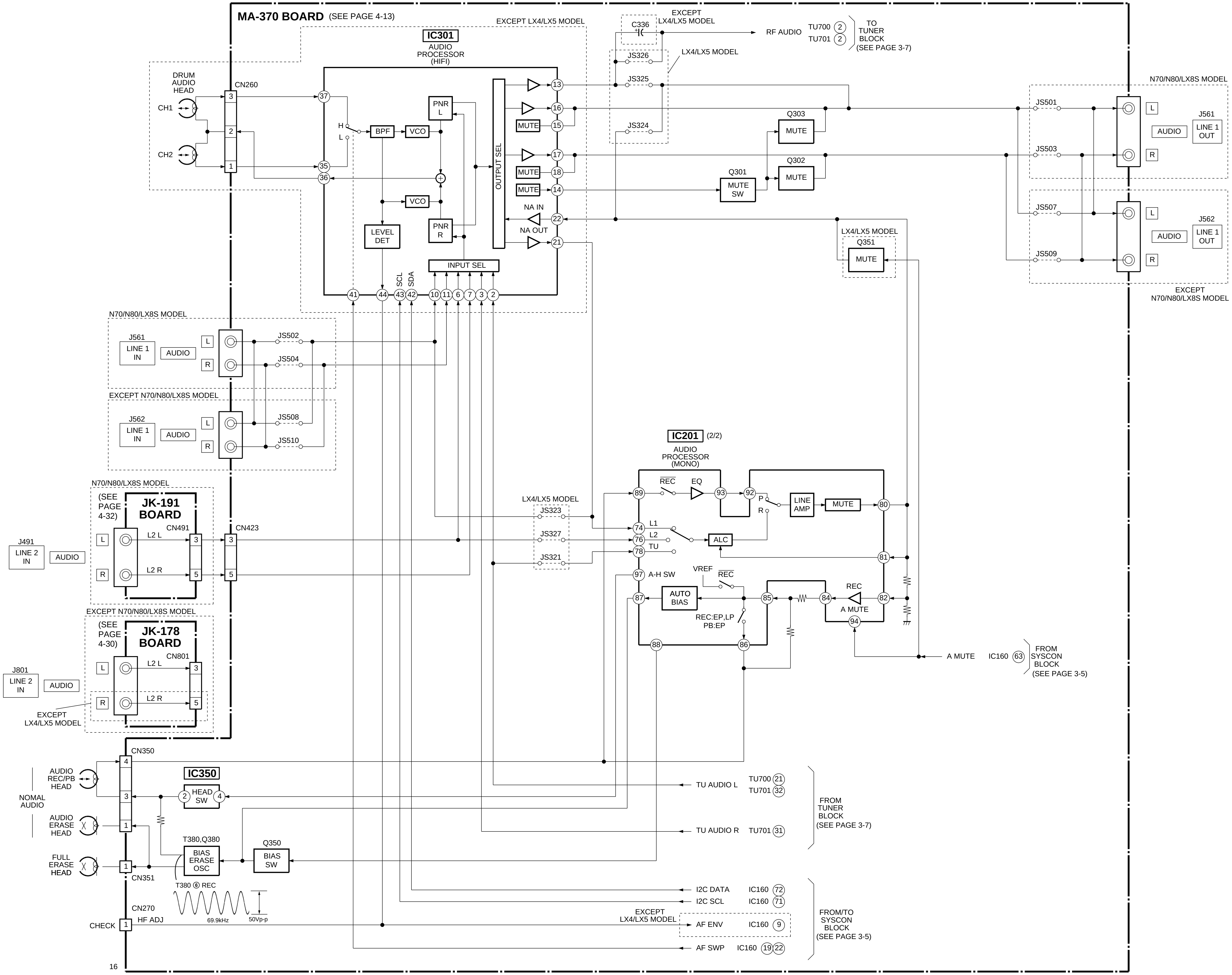
3-3. SERVO/SYSTEM CONTROL BLOCK DIAGRAM


MA-370 BOARD (SEE PAGE 4-11)
M901
DRUM MOTOR
VCC
OUTPUT
OUTPUT
HALL DEVICE
MATRIX
PG
FG
M12V
D109
CN101
D VS
D PG
D FG
IC160 (2/3)
SERVO CONTROL
DRUM ERR
DRUM PG
DRUM FG
IC160 DRAM PG REC/PB
30Hz
4.6Vp-p
M902
CAPSTAN MOTOR
SW5V
HALL DEVICE
VM
VCC
TL
U+
U-
V+
V-
W+
W-
U
V
W
CAPSTAN FG
CN102
M12V
SW5V
PS101
LIMITER
IC160 DRAM FG REC/PB
360Hz
4.5Vp-p
CVS
CAP RVS
CAP FG
CAP ERR
CAP RVS
CAP FG
IC160 CAP FG SP
1078Hz
4.4Vp-p
CTL HEAD
CN161
CTL(X)
CTL (Y)
CTL +
CTL -
IC160 CTL+IN REC
30Hz
5.0Vp-p
M903
LOADING MOTOR
CN103
IC101
LOADING MOTOR DRIVE
CAM -
CAM +
IN2
S102
CAM ENCODER
MECHA POSITION
MODE1
MODE2
MODE3
MODE4
D6V
D161
D162
L161
L162
L163
UNSW 5V
D5V
IC162
RESET PULSE GEN.
POWER FAIL DET.
IC160 T REEL
1.6sec (TAPE TOP)
4.8Vp-p
SW12V
PH102
T REEL FG
PH101
S REEL FG
IC160 S REEL
0.9sec (TAPE TOP)
4.8Vp-p
D5V
D103
T/S LED
Q101
TAKE END SENSOR
Q102
SUPPLY END SENSOR
Q103
LED DRIVE
S101
REC PROOF
IC160 4fsc (OUT) REC/PB
14.31818MHz
5.0Vp-p
X160
14.31818MHz
IC160 32kHz (OUT) REC/PB
X160
32.768kHz
32.768kHz
3.0Vp-p
IC160 OSC OUT REC/PB
L500
25.3MHz
4.6Vp-p
IC160 (3/3)
SYSTEM CONTROL
VCC
AVCC
AMP VCC
RST
POWER FAIL
T REEL FG
S REEL FG
T SENS
S SENS
END LED
REC PRF
4fSC IN
4fSC OUT
32kHz IN
32kHz OUT
CAM
MODE1
MODE2
MODE3
MODE4
OSC IN
OSC OUT
EXCEPT AX10/N50 MODEL
IC570 ARC DATA
IC570 ARC CLK
ARC DATA
ARC CLK
IC201 Q VD
Q VD
TO/FROM VIDEO BLOCK (SEE PAGE 3-4)
IC260 RF ENV
IC260 ENV SW
IC201, IC260 HA SWP
IC201, IC260 RF SWP
IC201 C ROT
IC201 I2C DATA
IC201 I2C CLK
V RF ENV
ENV SW
HA SWP
RF SWP
C ROT
I2C DATA
I2C CLK
IC360 I2C DATA
IC360 I2C CLK
EXCEPT LX4/LX5 MODEL
IC360 AF ENV
AF ENV
TO/FROM AUDIO BLOCK (SEE PAGE 3-10)
IC360 AF SWP
AF SWP
AF REC P
Q351, IC360 A MUTE
A MUTE
IC160 CTL AMP OUT PB
30Hz
4.0Vp-p
JL111
CTL AMP OUT
16
I2C DATA
I2C CLK
IC161
EEPROM
RESET
S DATA
S CLK
FOR CHECK
CN104
ANT SEL
PLL DATA
PLL CLK
PLL ENABLE
TU AFT
STEREO
SAP
MAIN/SAP
F MONO
TA MUTE
TV/VTR
PLL DATA
PLL CLOCK
PLL ENABLE
TU AFT
STEREO
SAP
MAIN/SAP
F MONO
TA MUTE
TU700-702
TU701
TU702
TO/FROM TUNER BLOCK (SEE PAGE 3-7)
V SET CS
V SET RESET
N80 MODEL ONLY
S IN 0
S OUT 0
S CLK 0
IC871
TO/FROM VIDEO BLOCK (SEE PAGE 3-4)
IC404
FL DRIVER
S IN
S OUT
S CLK
FLD CS
D IN
CLK
STB
S1-S16
G1-G6
LED1
D401
LX8S ONLY
ND420
VACUUM FLUORESCENT INDICATOR TUBE
F -
F +
N70/N80/LX8S MODEL
S421 RR
S422 ESU
S424 CH+
S425 INSEL
S426 SYNC
S423 CH-
CN404
CH+
EJECT
CH -
PB/STOP
N70/N80/LX8S MODEL
DM-89 BOARD (SEE PAGE 4-34)
CN471
S462 EJECT
S463 REC
S466 REW
S467 STOP
S468 PLAY
S469 FF
S472 PAUSE
LX4/LX5/LX6S/LX7S MODEL
S403 RR
EXCEPT N70/N80/LX8S MODEL
S406 ESU
S404 CH+
S408 REW
S412 REC
S405 CH-
S409 PAUSE
S413 FF
S410 PLAY
S411 STOP
FUNC KEY2
N70/N80/LX8S MODEL
MF-319 BOARD (SEE PAGE 4-35)
CN403
POWER
CN461
S461 POWER
IC461
REMOTE CONTROL RECEIVER
D5V
REMOCON
REMOCON
EXCEPT N70/N80/LX8S MODEL
IC403
REMOTE CONTROL RECEIVER
D5V
EXCEPT N70/N80/LX8S MODEL
JK-178 BOARD (SEE PAGE 4-30)
CN405
POWER
CN802
S801 POWER
EJECT
S802 EJECT
FUNC KEY1
EXCEPT AX10/N50 MODEL
DI-74 BOARD (SEE PAGE 4-36)
CN402
TIMER SET
KKP -
KKP +
CN901
S901
DIAL TIMER PUSH/TURN
KKP -
KKP +
N80 MODEL ONLY
IC980
S-LINK/CBC I/O
SIRCS IN
REG ON/OFF
SIRCS OUT
STATUS OUT
REG OUT
CONTROL S OUT
CONTROL S IN
CNJ980 OUT
CNJ981 IN
CABLE BOX CONTROL/ CONTROL S
CBC ON
SIRCS OUT
NICOLE
P CONT M12
P CONT SW12
P CONT M12
P CONT SW12
TO POWER BLOCK

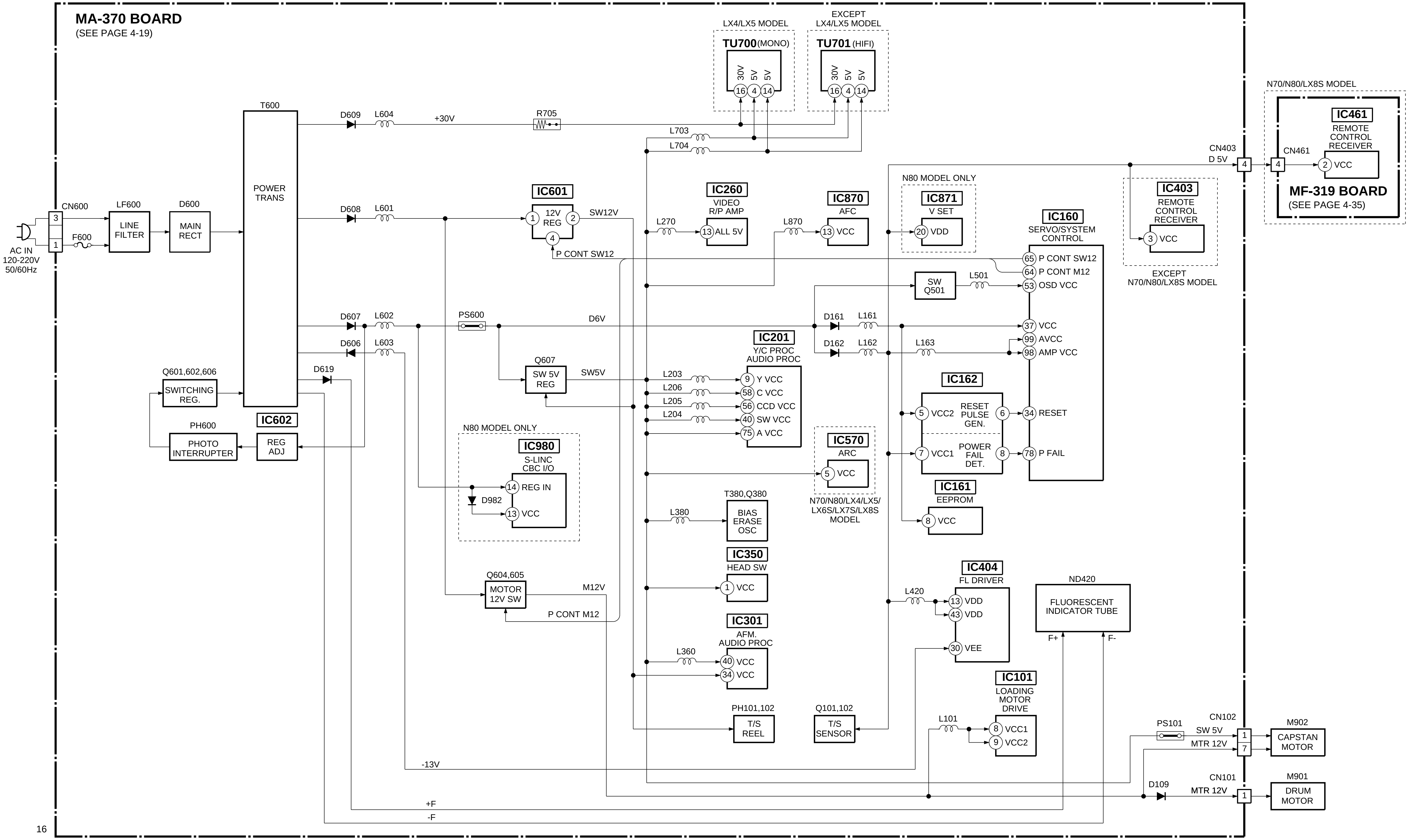
3-4. TUNER BLOCK DIAGRAM


MA-370 BOARD (SEE PAGE 4-15)
LX4/LX5 MODEL
TU700 (MONO)
VHF/ UHF
IN
OUT
CH SW
VIDEO IN
AUDIO IN
DET OUT
MPX OUT
CONT
DATA
CLOCK
ENABLE
AFT
RF AGC
VIF
5V
5V
30V
3 6 2 24 21 5 12 11 10 23 9 17 4 14 16
EXCEPT LX4/LX5 MODEL
TU701 (HIFI)
VHF/ UHF
IN
OUT
CH SW
VIDEO IN
AUDIO IN
DET OUT
L OUT
R OUT
CONT
DATA
CLOCK
ENABLE
AFT
ST IND
SAP IND
MODE
F MONO
MUTE
RF AGC
VIF
5V
5V
30V
3 6 2 24 32 31 5 12 11 10 23 26 27 28 29 30 9 17 4 14 16
30V
L704
L703
SW5V
FROM POWER BLOCK
S701
RF UNIT
3 CH
4 CH
FROM VIDEO BLOCK (SEE PAGE 3-3)
Q501 C RF VIDEO
EXCEPT LX4/LX5 MODEL
C336
JS326
LX4/LX5 MODEL
FROM AUDIO BLOCK (SEE PAGE 3-10)
RF AUDIO
R713 LX4/LX5 MODEL
FROM VIDEO BLOCK (SEE PAGE 3-3)
IC201 39 TU VIDEO IN
IC301 2
IC201 78
TU AUDIO L
LX4/LX5 MODEL
FROM AUDIO BLOCK (SEE PAGE 3-10)
IC301 3 TU AUDIO R
TO/FROM SYSTEM CONTROL BLOCK (SEE PAGE 3-6)
IC160 21 $\overline{\text{TV}}$/VTR
IC160 60 PLL DATA
IC160 59 PLL CLOCK
IC160 61 PLL ENABLE
IC160 3 TU AFT
IC160 85 $\overline{\text{STEREO}}$
IC160 86 $\overline{\text{SAP}}$
IC160 83 $\overline{\text{MAIN}}$/SAP
IC160 84 F MONO
IC160 62 TA MUTE
16

3-5. AUDIO BLOCK DIAGRAM


MA-370 BOARD (SEE PAGE 4-13)
EXCEPT LX4/LX5 MODEL
IC301
AUDIO PROCESSOR (HIFI)
DRUM AUDIO HEAD
CH1
CH2
CN260
PNR L
PNR R
BPF
VCO
VCO
H
L
LEVEL DET
OUTPUT SEL
INPUT SEL
MUTE
MUTE
MUTE
NA IN
NA OUT
SCL
SDA
C336
EXCEPT LX4/LX5 MODEL
JS326
JS325
JS324
LX4/LX5 MODEL
RF AUDIO
TU700 ②
TU701 ②
TO TUNER BLOCK (SEE PAGE 3-7)
Q303
MUTE
Q302
MUTE
Q301
MUTE SW
LX4/LX5 MODEL
Q351
MUTE
N70/N80/LX8S MODEL
JS501
JS503
J561
AUDIO
LINE 1 OUT
L
R
JS507
JS509
J562
AUDIO
LINE 1 OUT
EXCEPT N70/N80/LX8S MODEL
N70/N80/LX8S MODEL
J561
LINE 1 IN
AUDIO
JS502
JS504
EXCEPT N70/N80/LX8S MODEL
J562
LINE 1 IN
AUDIO
JS508
JS510
N70/N80/LX8S MODEL
(SEE PAGE 4-32)
JK-191 BOARD
CN491
L2 L
L2 R
CN423
J491
LINE 2 IN
AUDIO
EXCEPT N70/N80/LX8S MODEL
(SEE PAGE 4-30)
JK-178 BOARD
CN801
J801
LINE 2 IN
AUDIO
EXCEPT LX4/LX5 MODEL
LX4/LX5 MODEL
JS323
JS327
JS321
IC201 (2/2)
AUDIO PROCESSOR (MONO)
REC
EQ
P
R
LINE AMP
MUTE
L1
L2
TU
ALC
A-H SW
VREF
REC
AUTO BIAS
REC:EP,LP
PB:EP
REC
A MUTE
A MUTE
IC160 ㊸
FROM SYSCON BLOCK (SEE PAGE 3-5)
CN350
AUDIO REC/PB HEAD
NOMAL AUDIO
AUDIO ERASE HEAD
FULL ERASE HEAD
IC350
HEAD SW
T380,Q380
BIAS ERASE OSC
Q350
BIAS SW
CN351
T380 ⑥ REC
69.9kHz
50Vp-p
CN270
HF ADJ
CHECK
16
TU AUDIO L
TU700 ㉑
TU701 ㉜
TU AUDIO R
TU701 ㉛
FROM TUNER BLOCK (SEE PAGE 3-7)
I2C DATA
IC160 (72)
I2C SCL
IC160 (71)
EXCEPT LX4/LX5 MODEL
AF ENV
IC160 ⑨
AF SWP
IC160 ⑲㉒
FROM/TO SYSCON BLOCK (SEE PAGE 3-5)

3-6. POWER BLOCK DIAGRAM

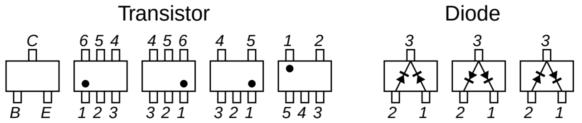

MA-370 BOARD
(SEE PAGE 4-19)
AC IN
120-220V
50/60Hz
CN600
3
1
F600
LF600
LINE FILTER
D600
MAIN RECT
T600
POWER TRANS
Q601,602,606
SWITCHING REG.
PH600
PHOTO INTERRUPTER
IC602
REG ADJ
D609
L604
+30V
R705
D608
L601
IC601
12V REG
SW12V
P CONT SW12
D607
L602
PS600
D6V
D606
L603
D619
Q607
SW 5V REG
SW5V
N80 MODEL ONLY
IC980
S-LINC CBC I/O
REG IN
VCC
D982
Q604,605
MOTOR 12V SW
M12V
P CONT M12
-13V
+F
-F
LX4/LX5 MODEL
TU700 (MONO)
EXCEPT LX4/LX5 MODEL
TU701 (HIFI)
30V
5V
5V
L703
L704
L270
IC260
VIDEO R/P AMP
ALL 5V
L870
IC870
AFC
VCC
N80 MODEL ONLY
IC871
V SET
VDD
IC201
Y/C PROC AUDIO PROC
L203
L206
L205
L204
Y VCC
C VCC
CCD VCC
SW VCC
A VCC
IC570
ARC
VCC
N70/N80/LX4/LX5/LX6S/LX7S/LX8S MODEL
T380,Q380
L380
BIAS ERASE OSC
IC350
HEAD SW
VCC
IC301
AFM. AUDIO PROC
L360
VCC
VCC
PH101,102
T/S REEL
Q101,102
T/S SENSOR
SW Q501
L501
D161
L161
D162
L162
L163
IC160
SERVO/SYSTEM CONTROL
P CONT SW12
P CONT M12
OSD VCC
VCC
AVCC
AMP VCC
RESET
P FAIL
IC162
VCC2
RESET PULSE GEN.
VCC1
POWER FAIL DET.
IC161
EEPROM
VCC
L420
IC404
FL DRIVER
VDD
VDD
VEE
ND420
FLUORESCENT INDICATOR TUBE
F+
F-
IC101
LOADING MOTOR DRIVE
L101
VCC1
VCC2
IC403
REMOTE CONTROL RECEIVER
VCC
EXCEPT N70/N80/LX8S MODEL
CN403
D 5V
N70/N80/LX8S MODEL
IC461
REMOTE CONTROL RECEIVER
CN461
VCC
MF-319 BOARD
(SEE PAGE 4-35)
PS101
CN102
SW 5V
MTR 12V
M902
CAPSTAN MOTOR
D109
CN101
MTR 12V
M901
DRUM MOTOR
16

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

(For printed wiring boards)

- ░: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

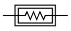
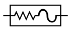


(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted. kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 L452
22U 10UH
TA A 2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

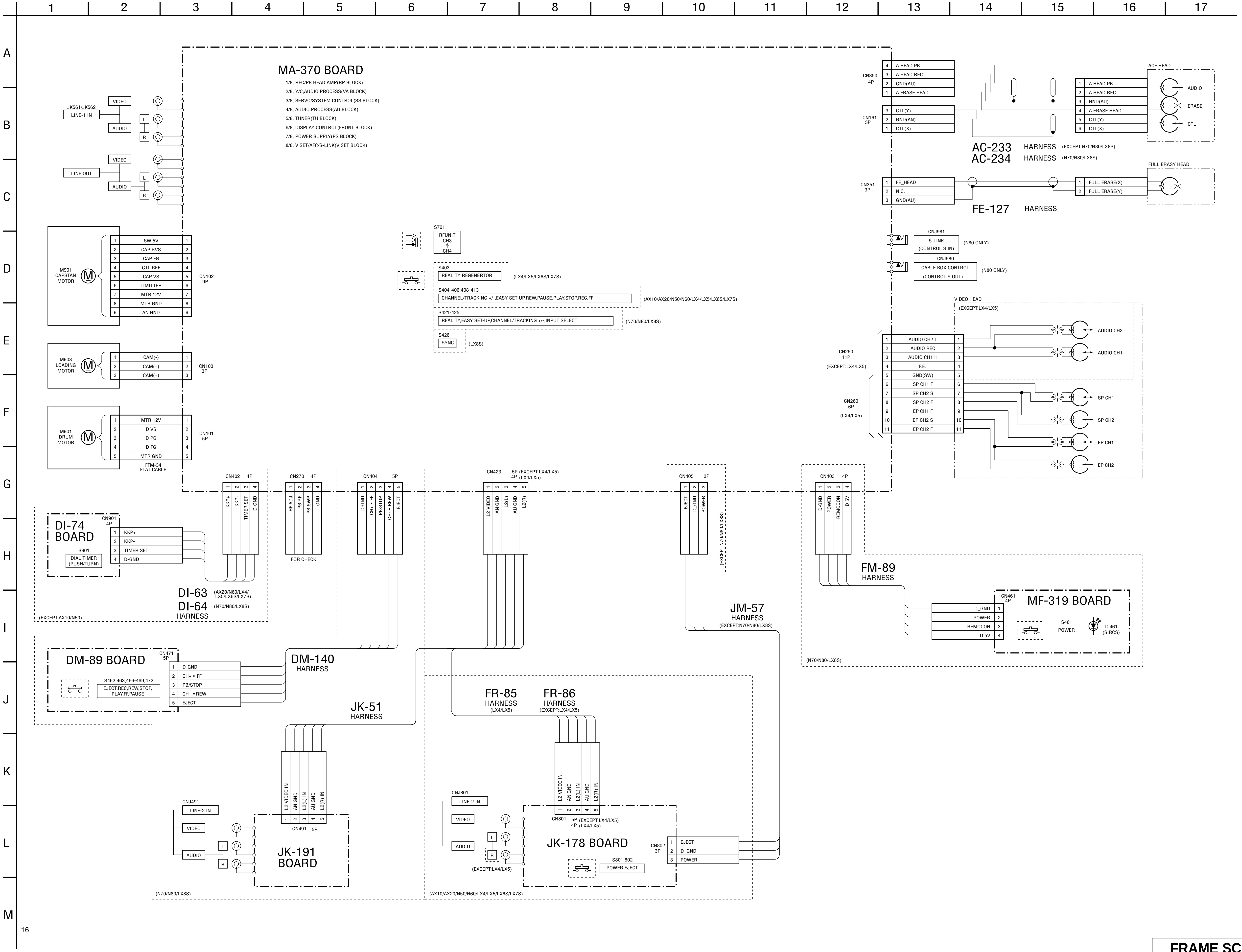
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
-  : non flammable resistor
-  : fusible resistor
- ▭ : panel designation
- △ : internal component.
- **B+** : B+ Line.
- **B–** : B– Line.
- Circled numbers refer to waveforms.
- Readings are taken with a color-bar signal input.
- Voltage are dc between ground and measurement points.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- ▭ : adjustment for repair.
- Circled numbers refer to waveforms.

When indicating parts by reference number, please include the board name.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MEMO

4-1. FRAME SCHEMATIC DIAGRAM


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L M
MA-370 BOARD
1/8, REC/PB HEAD AMP(RP BLOCK)
2/8, Y/C,AUDIO PROCESS(VA BLOCK)
3/8, SERVO/SYSTEM CONTROL(SS BLOCK)
4/8, AUDIO PROCESS(AU BLOCK)
5/8, TUNER(TU BLOCK)
6/8, DISPLAY CONTROL(FRONT BLOCK)
7/8, POWER SUPPLY(PS BLOCK)
8/8, V SET/AFC/S-LINK(V SET BLOCK)
JK561/JK562
LINE-1 IN
VIDEO
AUDIO
L
R
LINE OUT
M901 CAPSTAN MOTOR
SW 5V
CAP RVS
CAP FG
CTL REF
CAP VS
LIMITTER
MTR 12V
MTR GND
AN GND
CN102 9P
M903 LOADING MOTOR
CAM(-)
CAM(+)
CN103 3P
M901 DRUM MOTOR
D VS
D PG
D FG
CN101 5P
FFM-34 FLAT CABLE
S701
RFUNIT CH3 CH4
S403
REALITY REGENERTOR
(LX4/LX5/LX6S/LX7S)
S404-406,408-413
CHANNEL/TRACKING +/-,EASY SET UP,REW,PAUSE,PLAY,STOP,REC,FF
(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
S421-425
REALITY,EASY SET-UP,CHANNEL/TRACKING +/-,INPUT SELECT
(N70/N80/LX8S)
S426
SYNC
(LX8S)
CN350 4P
A HEAD PB
A HEAD REC
GND(AU)
A ERASE HEAD
CN161 3P
CTL(Y)
GND(AN)
CTL(X)
ACE HEAD
AUDIO
ERASE
CTL
AC-233 HARNESS (EXCEPT:N70/N80/LX8S)
AC-234 HARNESS (N70/N80/LX8S)
CN351 3P
FE_HEAD
N.C.
FULL ERASY HEAD
FULL ERASE(X)
FULL ERASE(Y)
FE-127 HARNESS
CNJ981
S-LINK (CONTROL S IN)
(N80 ONLY)
CNJ980
CABLE BOX CONTROL (CONTROL S OUT)
VIDEO HEAD (EXCEPT:LX4/LX5)
CN260 11P (EXCEPT:LX4/LX5)
CN260 6P (LX4/LX5)
AUDIO CH2 L
AUDIO REC
AUDIO CH1 H
F.E.
GND(SW)
SP CH1 F
SP CH2 S
SP CH2 F
EP CH1 F
EP CH2 S
EP CH2 F
AUDIO CH2
AUDIO CH1
SP CH1
SP CH2
EP CH1
EP CH2
CN402 4P
KKP+
KKP-
TIMER SET
D-GND
CN270 4P
HF ADJ
PB RF
PB SWP
GND
FOR CHECK
CN404 5P
D-GND
CH+ • FF
PB/STOP
CH- • REW
EJECT
CN423 5P (EXCEPT:LX4/LX5) 4P (LX4/LX5)
L2 VIDEO
AN GND
L2(L)
AU GND
L2(R)
CN405 3P
EJECT
D_GND
POWER
(EXCEPT:N70/N80/LX8S)
CN403 4P
D-GND
POWER
REMOCON
D 5V
DI-74 BOARD
CN901 4P
S901
DIAL TIMER (PUSH/TURN)
DI-63 (AX20/N60/LX4/LX5/LX6S/LX7S)
DI-64 (N70/N80/LX8S)
HARNESS
(EXCEPT:AX10/N50)
FM-89 HARNESS
MF-319 BOARD
CN461 4P
D_GND
POWER
REMOCON
D 5V
S461
POWER
IC461 (SIRCS)
(N70/N80/LX8S)
JM-57 HARNESS (EXCEPT:N70/N80/LX8S)
DM-89 BOARD
CN471 5P
S462,463,466-469,472
EJECT,REC,REW,STOP, PLAY,FF,PAUSE
DM-140 HARNESS
JK-51 HARNESS
FR-85 HARNESS (LX4/LX5)
FR-86 HARNESS (EXCEPT:LX4/LX5)
CNJ491
LINE-2 IN
L2 VIDEO IN
AN GND
L2(L) IN
AU GND
L2(R) IN
CN491 5P
JK-191 BOARD
(N70/N80/LX8S)
CNJ801
CN801 5P (EXCEPT:LX4/LX5) 4P (LX4/LX5)
JK-178 BOARD
CN802 3P
S801,802
POWER,EJECT
(EXCEPT:LX4/LX5)
(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

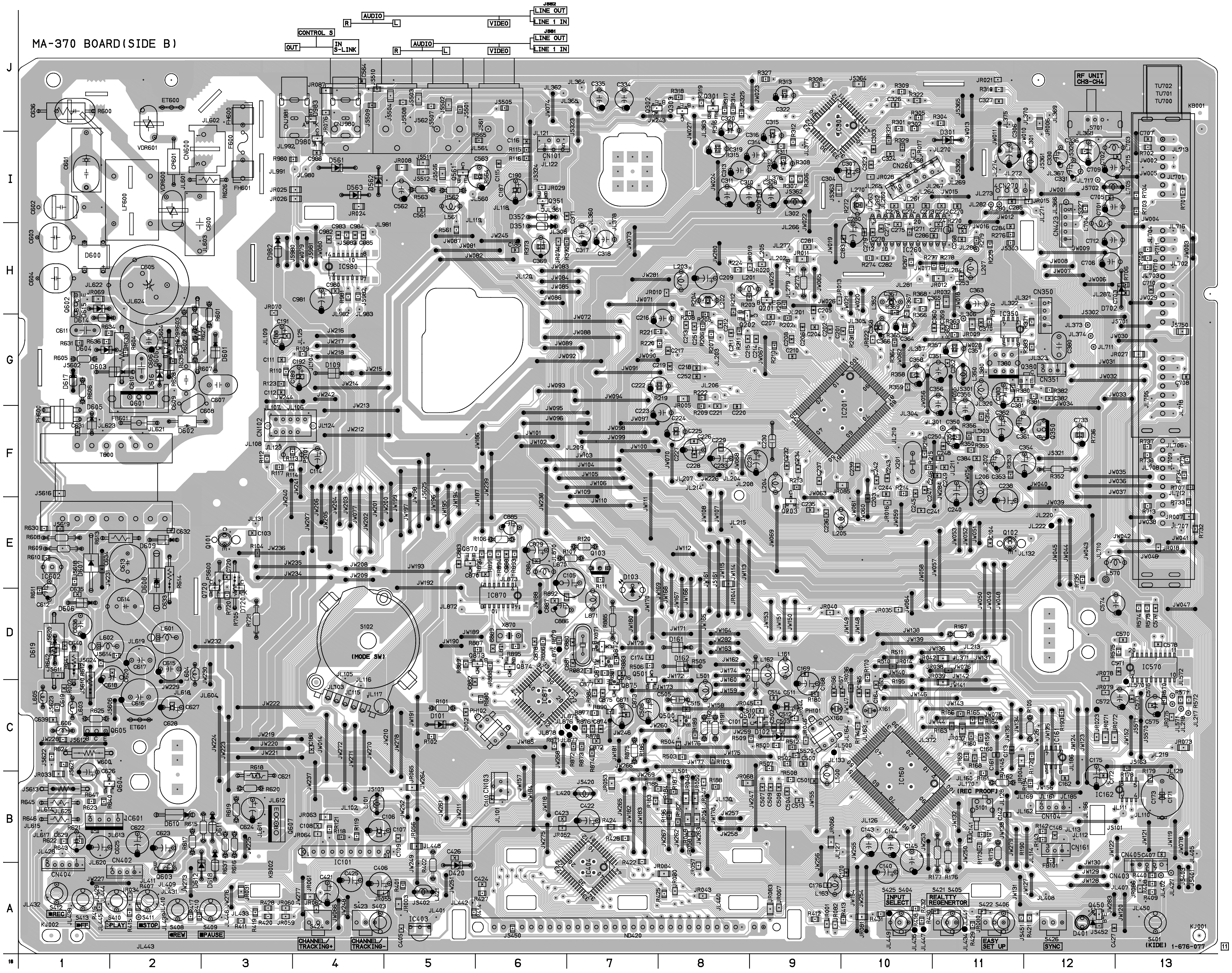
MA-370 (VIDEO, AUDIO, SERVO/SYSTEM CONTROL, TUNER, POWER) PRINTED WIRING BOARD

— Ref. No. MA-370 Board:1,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

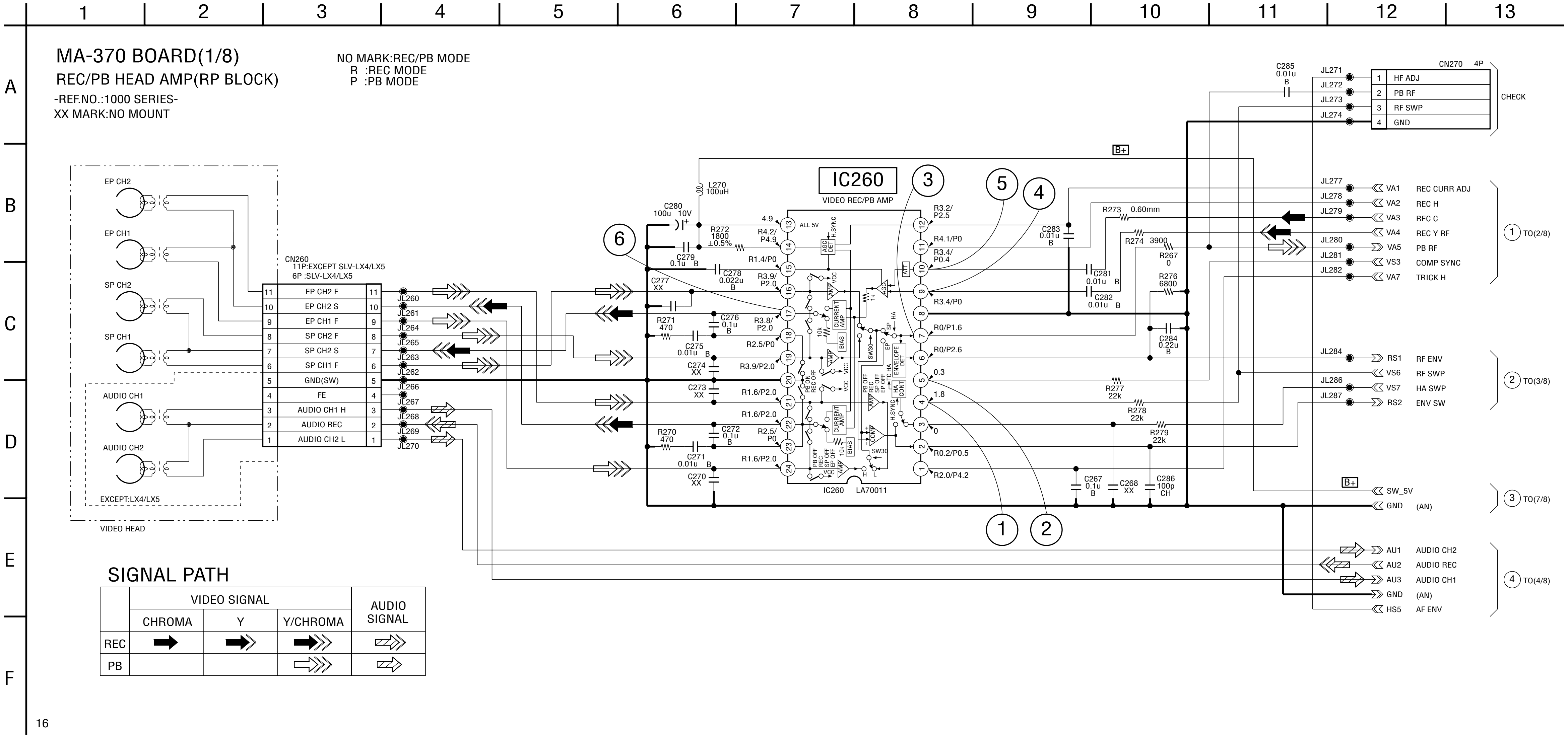
MA-370 BOARD

D103	D-7
D109	G-4
D161	D-8
D162	D-8
D351	H-6
D352	I-5
D401	A-12
D420	A-5
D561	I-4
D600	H-1
D601	G-3
D602	F-2
D603	G-1
D604	G-1
D605	F-1
D606	D-1
D607	E-1
D608	E-2
D609	E-2
D610	B-2
D611	B-3
D612	A-3
D614	G-1
D615	H-1
D616	G-2
D617	G-1
D618	A-3
D619	D-1
D702	H-13
D980	I-4
D982	H-3
D983	I-4
IC101	B-4
IC160	B-10
IC161	C-12
IC162	B-13
IC201	F-9
IC260	H-10
IC301	J-9
IC350	G-11
IC403	A-5
IC404	A-7
IC570	D-13
IC601	B-1
IC602	E-1
IC870	D-6
IC871	C-6
IC980	H-4
Q101	E-3
Q102	E-11
Q103	E-7
Q201	H-9
Q202	G-8
Q203	E-9
Q301	J-8
Q302	J-7
Q303	J-8
Q350	F-12
Q351	I-6
Q380	G-12
Q500	C-8
Q501	D-7
Q502	C-9
Q561	I-5
Q601	G-2
Q602	H-1
Q603	A-2
Q604	B-1
Q605	C-1
Q606	G-2
Q607	B-3
Q870	E-5
Q871	D-7
Q872	D-7
Q873	D-6
Q874	D-6
Q875	C-7


MA-370 BOARD(SIDE B)
CONTROL S
OUT
IN S-LINK
AUDIO
R
L
VIDEO
J582
LINE OUT
LINE 1 IN
J581
LINE OUT
LINE 1 IN
RF UNIT CH3-CH4
(MODE SW)
S102
(REC PROOF)
REC
FF
PLAY
STOP
REW
PAUSE
CHANNEL/ TRACKING+
CHANNEL/ TRACKING-
INPUT SELECT
REALITY REGENERATOR
EASY SET UP
SYNC
(KIDE)
1-676-077
11
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

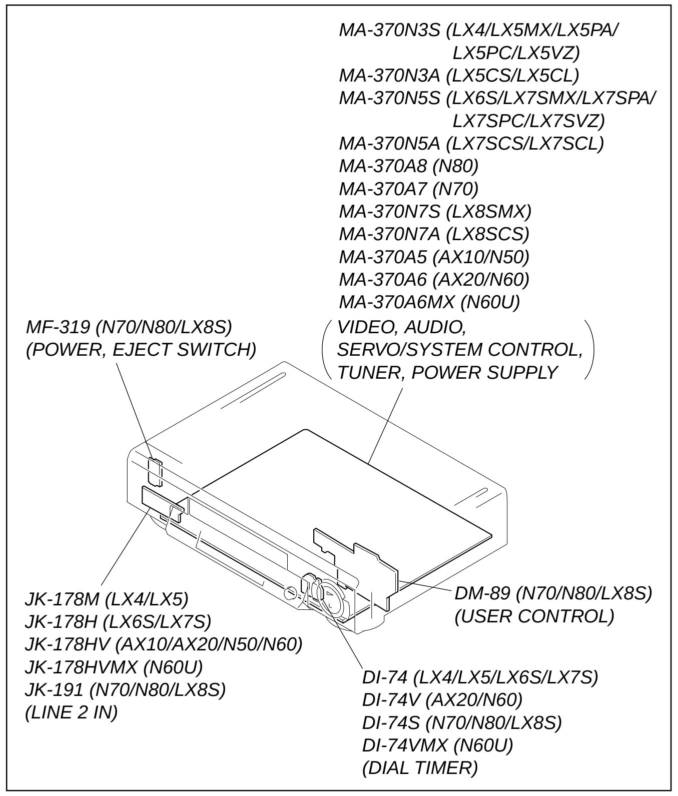
For schematic diagram

- Refer to page 4-23 for waveforms.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
MA-370 BOARD(1/8)
REC/PB HEAD AMP(RP BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
EP CH2
EP CH1
SP CH2
SP CH1
AUDIO CH1
AUDIO CH2
EXCEPT:LX4/LX5
VIDEO HEAD
CN260
11P:EXCEPT SLV-LX4/LX5
6P :SLV-LX4/LX5
EP CH2 F
EP CH2 S
EP CH1 F
SP CH2 F
SP CH2 S
SP CH1 F
GND(SW)
FE
AUDIO CH1 H
AUDIO REC
AUDIO CH2 L
JL260
JL261
JL264
JL265
JL263
JL262
JL266
JL267
JL268
JL269
JL270
IC260
VIDEO REC/PB AMP
IC260 LA70011
L270
100uH
C280
100u 10V
R272
1800
±0.5%
C279
0.1u B
C278
0.022u
B
C277
XX
R271
470
C276
0.1u
B
C275
0.01u B
C274
XX
C273
XX
R270
470
C272
0.1u
B
C271
0.01u B
C270
XX
4.9
R4.2/
P4.9
R1.4/P0
R3.9/
P2.0
R3.8/
P2.0
R2.5/P0
R3.9/P2.0
R1.6/P2.0
R1.6/P2.0
R2.5/
P0
R1.6/P2.0
R3.2/
P2.5
R4.1/P0
R3.4/
P0.4
R3.4/P0
R0/P1.6
R0/P2.6
0.3
1.8
0
R0.2/P0.5
R2.0/P4.2
ALL 5V
H.SYNC
AGC DET
VCC
CURRENT AMP
BIAS
REC OFF
PB OFF
SW30
SW20
ENVELOPE DET
HA CONT
H.SYNC
ATT
C283
0.01u
B
R273 0.60mm
R274 3900
R267
0
C281
0.01u B
C282
0.01u B
R276
6800
C284
0.22u
B
R277
22k
R278
22k
R279
22k
C267
0.1u
B
C268
XX
C286
100p
CH
C285
0.01u
B
B+
CN270 4P
JL271
JL272
JL273
JL274
HF ADJ
PB RF
RF SWP
GND
CHECK
JL277
JL278
JL279
JL280
JL281
JL282
VA1
VA2
VA3
VA4
VA5
VS3
VA7
REC CURR ADJ
REC H
REC C
REC Y RF
PB RF
COMP SYNC
TRICK H
① TO(2/8)
JL284
JL286
JL287
RS1
VS6
VS7
RS2
RF ENV
RF SWP
HA SWP
ENV SW
② TO(3/8)
SW_5V
GND
(AN)
③ TO(7/8)
AU1
AU2
AU3
GND
HS5
AUDIO CH2
AUDIO REC
AUDIO CH1
(AN)
AF ENV
④ TO(4/8)
①
②
③
④
⑤
⑥
16

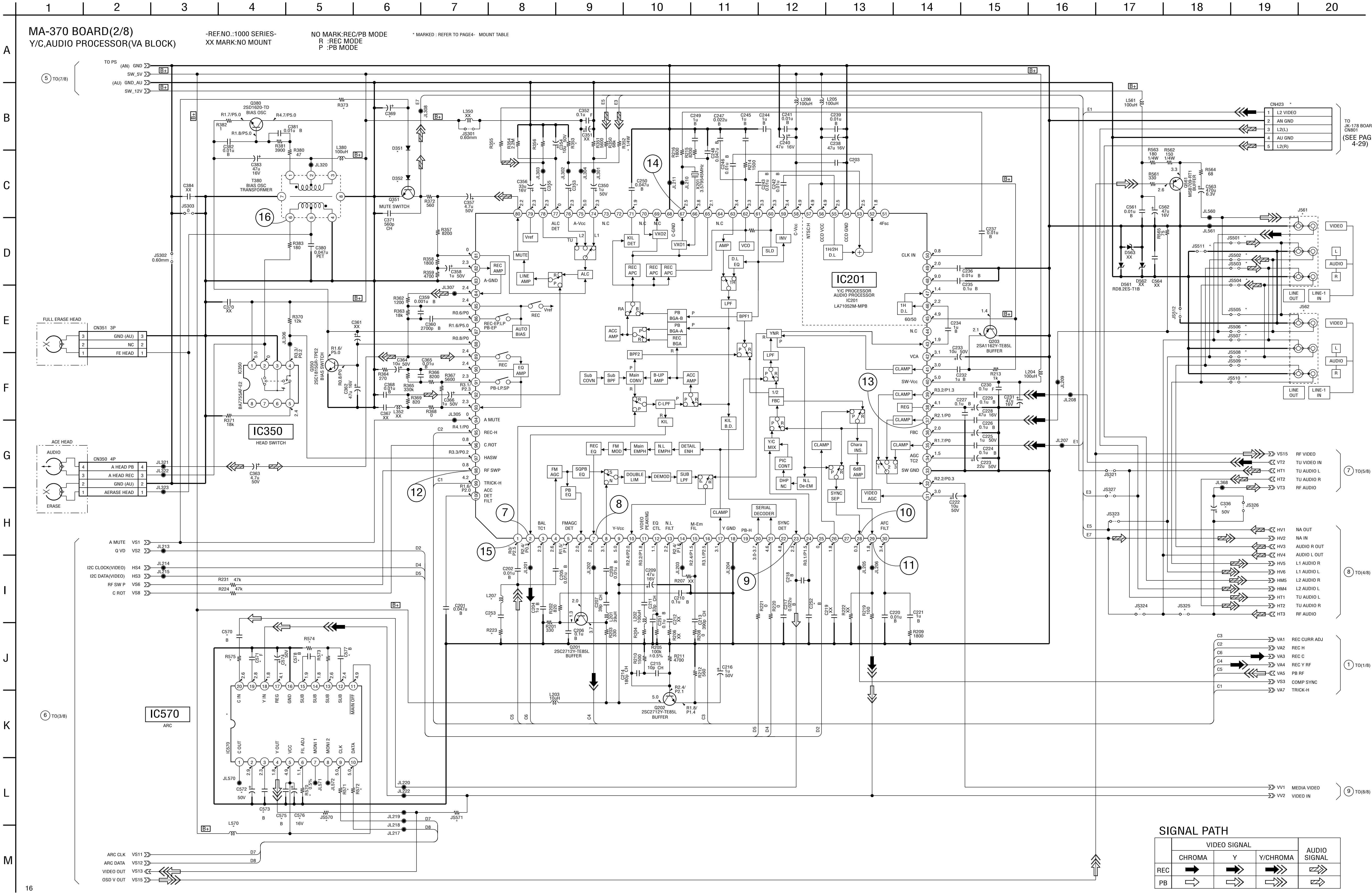
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡⟫	➡⟫⟫	⇨
PB			⇨⟫	⇨


MA-370N3S (LX4/LX5MX/LX5PA/
LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/
LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
(VIDEO, AUDIO,
SERVO/SYSTEM CONTROL,
TUNER, POWER SUPPLY)
MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)
JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)
DM-89 (N70/N80/LX8S)
(USER CONTROL)
DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)

For schematic diagram

- Refer to page 4-5 for printed wiring board.
- Refer to page 4-23 for waveforms.
- Refer to page 4-25 for mounted table.

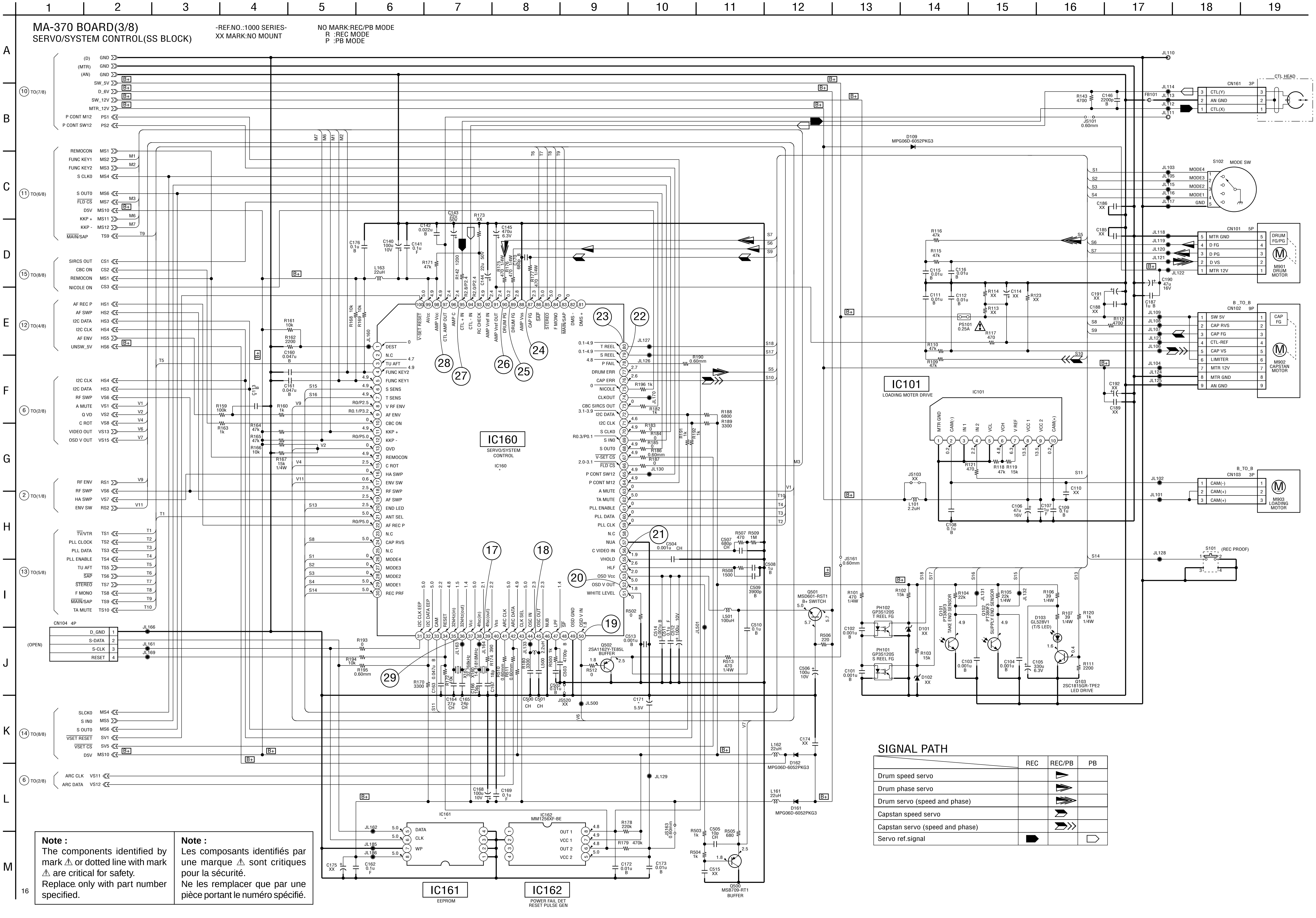

MA-370 BOARD(2/8)
Y/C,AUDIO PROCESSOR(VA BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* MARKED : REFER TO PAGE4- MOUNT TABLE
TO PS
5 TO(7/8)
FULL ERASE HEAD
CN351 3P
GND (AU)
NC
FE HEAD
ACE HEAD
AUDIO
ERASE
CN350 4P
A HEAD PB
A HEAD REC
GND (AU)
AERASE HEAD
IC350
HEAD SWITCH
BA7755AF-E2
Q380
2SD1620-TD
BIAS OSC
T380
BIAS OSC
TRANSFORMER
Q350
2SC1815GR-TPE2
BIAS SWITCH
Q351
MUTE SWITCH
IC201
Y/C PROCESSOR
AUDIO PROCESSOR
IC201
LA71052M-MPB
Q201
2SC2712Y-TE85L
BUFFER
Q202
2SC2712Y-TE85L
BUFFER
Q203
2SA1162Y-TE85L
BUFFER
Q561
MSB709-RT1
BUFFER
IC570
ARC
A MUTE
Q VD
I2C CLOCK(VIDEO)
I2C DATA(VIDEO)
RF SW P
C ROT
6 TO(3/8)
ARC CLK
ARC DATA
VIDEO OUT
OSD V OUT
CN423
L2 VIDEO
AN GND
L2(L)
AU GND
L2(R)
TO
JK-178 BOARD
CN801
(SEE PAGE
4-29)
VIDEO
AUDIO
LINE OUT
LINE-1 IN
RF VIDEO
TU VIDEO IN
TU AUDIO L
TU AUDIO R
RF AUDIO
7 TO(5/8)
NA OUT
NA IN
AUDIO R OUT
AUDIO L OUT
L1 AUDIO R
L1 AUDIO L
L2 AUDIO R
L2 AUDIO L
TU AUDIO L
TU AUDIO R
RF AUDIO
8 TO(4/8)
REC CURR ADJ
REC H
REC C
REC Y RF
PB RF
COMP SYNC
TRICK-H
1 TO(1/8)
MEDIA VIDEO
VIDEO IN
9 TO(8/8)

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

For schematic diagram

- Refer to page 4-5 for printed wiring board.
- Refer to page 4-23 for waveforms.
- Refer to page 4-25 for mounted table.


MA-370 BOARD(3/8)
SERVO/SYSTEM CONTROL(SS BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TO(7/8)
TO(6/8)
TO(8/8)
TO(4/8)
TO(2/8)
TO(1/8)
TO(5/8)
TO(8/8)
TO(2/8)
CN104 4P
(OPEN)
IC160
SERVO/SYSTEM CONTROL
IC101
LOADING MOTER DRIVE
IC161
EEPROM
IC162
POWER FAIL DET RESET PULSE GEN
MM1256XF-BE
CN161 3P
CTL HEAD
S102 MODE SW
CN101 5P
DRUM FG/PG
M901 DRUM MOTOR
CN102 9P
CAP FG
M902 CAPSTAN MOTOR
CN103 3P
M903 LOADING MOTOR
S101 (REC PROOF)
Q501 MSD601-RST1 B+ SWITCH
Q502 2SA1162Y-TE85L BUFFER
Q500 MSB709-RT1 BUFFER
Q103 2SC1815GR-TPE2 LED DRIVE
D103 GL528V1 (T/S LED)
PH101 GP3S120S S REEL FG
PH102 GP3S120S T REEL FG
Q101 PT380F3 TAKE END SENSOR
Q102 PT380F3 SUPPLY END SENSOR
D109 MPG06D-6052PKG3
D161 MPG06D-6052PKG3
D162 MPG06D-6052PKG3
PS101 0.25A
17
18
19
20
21
22
23
24
25
26
27
28
29

SIGNAL PATH

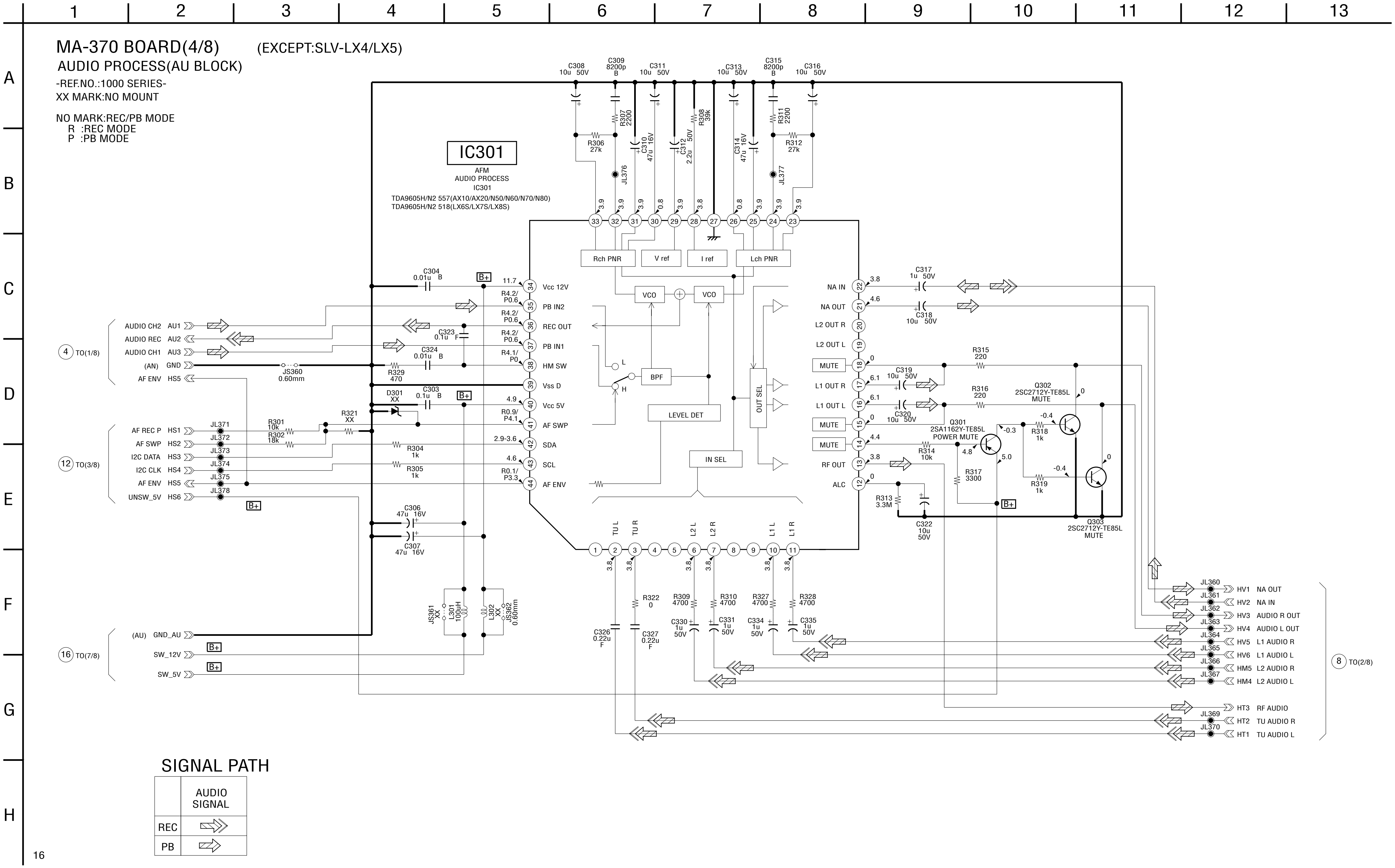
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⊳	
Drum servo (speed and phase)		⋙	
Capstan speed servo		➢	
Capstan servo (speed and phase)		➢》	
Servo ref.signal	➡		⇨

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

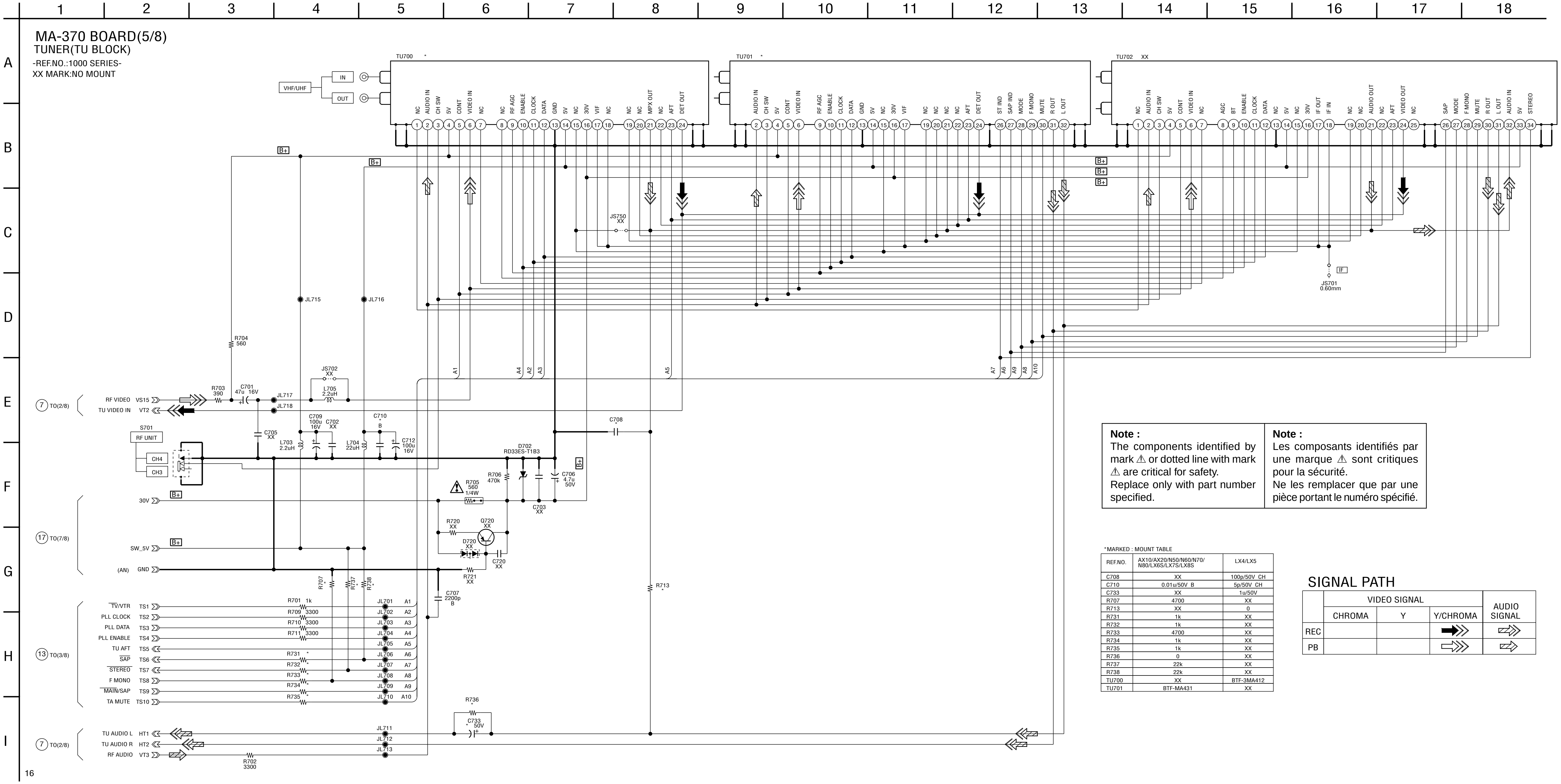
16

For schematic diagram

- Refer to page 4-5 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H
MA-370 BOARD(4/8)
(EXCEPT:SLV-LX4/LX5)
AUDIO PROCESS(AU BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC301
AFM
AUDIO PROCESS
IC301
TDA9605H/N2 557(AX10/AX20/N50/N60/N70/N80)
TDA9605H/N2 518(LX6S/LX7S/LX8S)
C308 10u 50V
C309 8200p B
C311 10u 50V
C313 10u 50V
C315 8200p B
C316 10u 50V
R306 27k
R307 2200
C310 47u 16V
C312 2.2u 50V
R308 39k
C314 47u 16V
R311 2200
R312 27k
JL376
JL377
Rch PNR
V ref
I ref
Lch PNR
VCO
VCO
BPF
LEVEL DET
OUT SEL
IN SEL
Vcc 12V
PB IN2
REC OUT
PB IN1
HM SW
Vss D
Vcc 5V
AF SWP
SDA
SCL
AF ENV
NA IN
NA OUT
L2 OUT R
L2 OUT L
MUTE
L1 OUT R
L1 OUT L
RF OUT
ALC
TU L
TU R
L2 L
L2 R
L1 L
L1 R
C304 0.01u B
C323 0.1u F
C324 0.01u B
C303 0.1u B
D301 XX
R329 470
JS360 0.60mm
R321 XX
R301 10k
R302 18k
R304 1k
R305 1k
C306 47u 16V
C307 47u 16V
JS361 XX
L301 100uH
L302 XX
JS362 0.60mm
AUDIO CH2 AU1
AUDIO REC AU2
AUDIO CH1 AU3
(AN) GND
AF ENV HS5
4 TO(1/8)
AF REC P HS1
AF SWP HS2
I2C DATA HS3
I2C CLK HS4
AF ENV HS5
UNSW_5V HS6
JL371
JL372
JL373
JL374
JL375
JL378
12 TO(3/8)
(AU) GND_AU
SW_12V
SW_5V
16 TO(7/8)
B+
C317 1u 50V
C318 10u 50V
C319 10u 50V
C320 10u 50V
R315 220
R316 220
R314 10k
R317 3300
R313 3.3M
C322 10u 50V
R318 1k
R319 1k
Q301 2SA1162Y-TE85L POWER MUTE
Q302 2SC2712Y-TE85L MUTE
Q303 2SC2712Y-TE85L MUTE
R322 0
C326 0.22u F
C327 0.22u F
R309 4700
R310 4700
R327 4700
R328 4700
C330 1u 50V
C331 1u 50V
C334 1u 50V
C335 1u 50V
JL360 HV1 NA OUT
JL361 HV2 NA IN
JL362 HV3 AUDIO R OUT
JL363 HV4 AUDIO L OUT
JL364 HV5 L1 AUDIO R
JL365 HV6 L1 AUDIO L
JL366 HM5 L2 AUDIO R
JL367 HM4 L2 AUDIO L
HT3 RF AUDIO
JL369 HT2 TU AUDIO R
JL370 HT1 TU AUDIO L
8 TO(2/8)
SIGNAL PATH
AUDIO SIGNAL
REC
PB
16

For schematic diagram
- Refer to page 4-5 for printed wiring board.


MA-370 BOARD(5/8)
TUNER(TU BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
TU700 *
TU701 *
TU702 XX
VHF/UHF
IN
OUT
NC AUDIO IN CH SW 5V CONT VIDEO IN NC NC RF AGC ENABLE CLOCK DATA GND 5V NC 30V VIF NC NC NC MPX OUT NC AFT DET OUT
AUDIO IN CH SW 5V CONT VIDEO IN RF AGC ENABLE CLOCK DATA GND 5V NC 30V VIF NC NC NC NC AFT DET OUT ST IND SAP IND MODE F MONO MUTE R OUT L OUT
NC AUDIO IN CH SW 5V CONT VIDEO IN NC AGC BT ENABLE CLOCK DATA NC 5V NC 30V IF OUT IF IN NC NC AUDIO OUT NC AFT VIDEO OUT NC SAP MODE F MONO MUTE R OUT L OUT AUDIO IN 5V STEREO
B+
JS750 XX
JS701 0.60mm
IF
JL715
JL716
R704 560
A1 A4 A2 A3 A5 A7 A6 A9 A8 A10
7 TO(2/8)
RF VIDEO VS15
TU VIDEO IN VT2
R703 390
C701 47u 16V
JL717
JL718
JS702 XX
L705 2.2uH
C710 * B
C708 *
S701 RF UNIT
CH4
CH3
C705 XX
L703 2.2uH
C709 100u 16V
C702 XX
L704 22uH
C712 100u 16V
D702 RD33ES-T1B3
R706 470k
C706 4.7u 50V
R705 560 1/4W
C703 XX
17 TO(7/8)
30V
SW_5V
(AN) GND
R720 XX
Q720 XX
D720 XX
C720 XX
R721 XX
C707 2200p B
R707 *
R737 *
R738 *
R713 *
13 TO(3/8)
TV/VTR TS1
PLL CLOCK TS2
PLL DATA TS3
PLL ENABLE TS4
TU AFT TS5
SAP TS6
STEREO TS7
F MONO TS8
MAIN/SAP TS9
TA MUTE TS10
R701 1k
R709 3300
R710 3300
R711 3300
R731 *
R732 *
R733 *
R734 *
R735 *
JL701 JL702 JL703 JL704 JL705 JL706 JL707 JL708 JL709 JL710
R736 *
C733 * 50V
7 TO(2/8)
TU AUDIO L HT1
TU AUDIO R HT2
RF AUDIO VT3
JL711 JL712 JL713
R702 3300
16

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

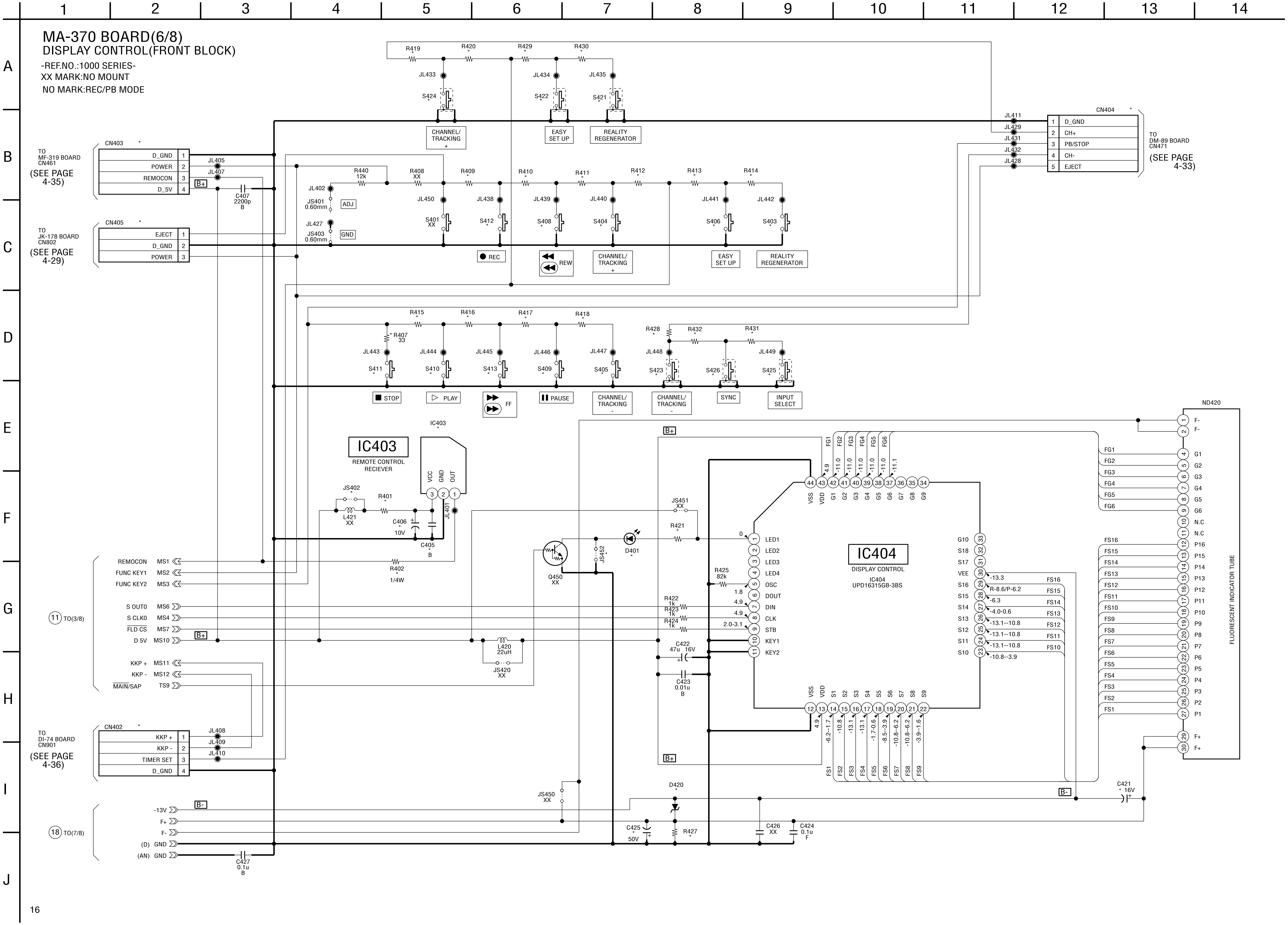
*MARKED : MOUNT TABLE

REF.NO.	AX10/AX20/N50/N60/N70/ N80/LX6S/LX7S/LX8S	LX4/LX5
C708	XX	100p/50V CH
C710	0.01u/50V B	5p/50V CH
C733	XX	1u/50V
R707	4700	XX
R713	XX	0
R731	1k	XX
R732	1k	XX
R733	4700	XX
R734	1k	XX
R735	1k	XX
R736	0	XX
R737	22k	XX
R738	22k	XX
TU700	XX	BTF-3MA412
TU701	BTF-MA431	XX

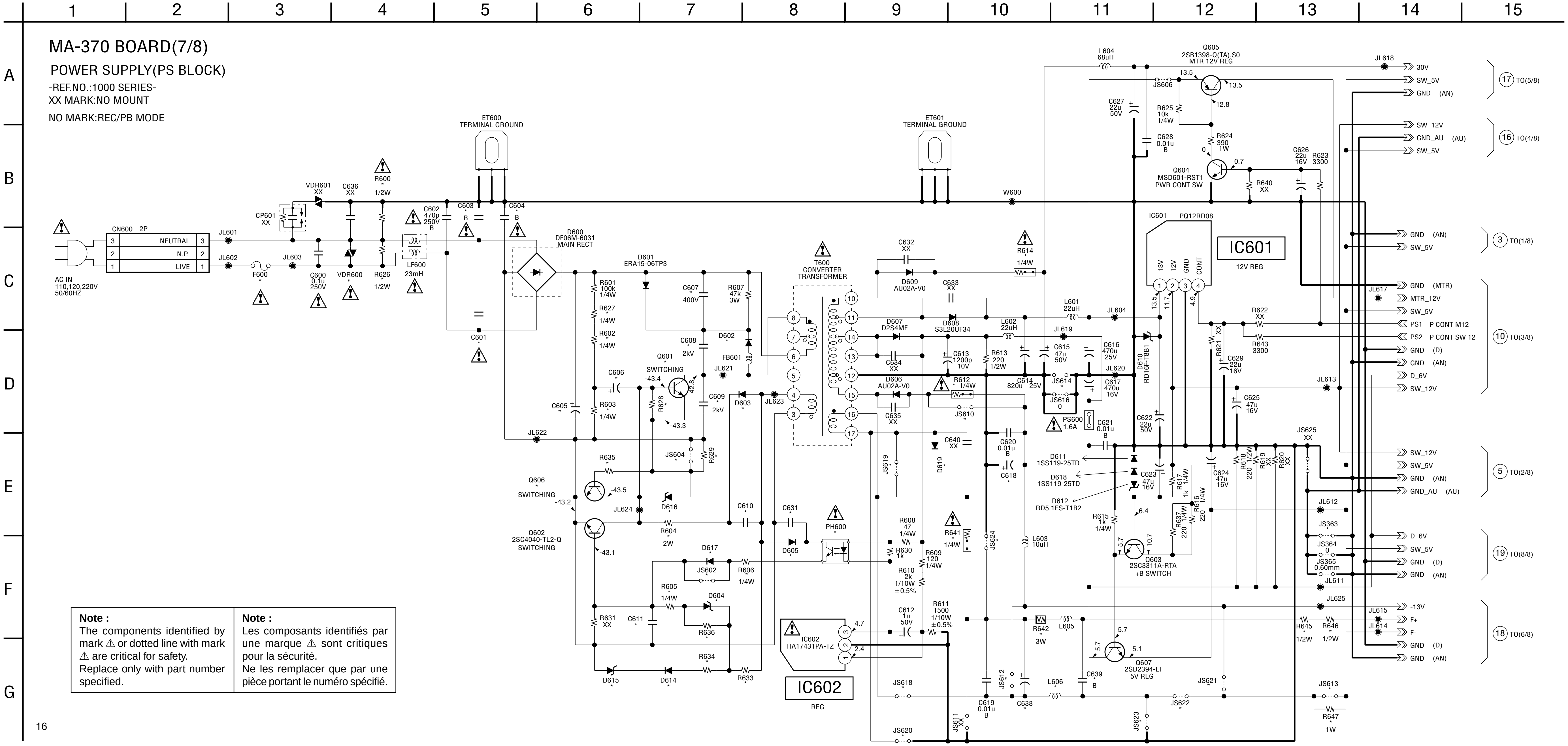
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB			⇨	⇨

For schematic diagram
- Refer to page 4-5 for printed wiring board.
- Refer to page 4-26 for mounted table.


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
MA-370 BOARD(6/8)
DISPLAY CONTROL(FRONT BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R419 R420 R429 R430
JL433 JL434 JL435
S424 S422 S421
CHANNEL/ TRACKING +
EASY SET UP
REALITY REGENERATOR
CN404
1 D_GND
2 CH+
3 PB/STOP
4 CH-
5 EJECT
JL411 JL429 JL431 JL432 JL428
TO DM-89 BOARD CN471
(SEE PAGE 4-33)
CN403
D_GND 1
POWER 2
REMOCON 3
D_5V 4
TO MF-319 BOARD CN461
(SEE PAGE 4-35)
JL405 JL407
B+
C407 2200p B
R440 12k
R408 XX
R409 R410 R411 R412 R413 R414
JL402
JS401 0.60mm
ADJ
JL427
JS403 0.60mm
GND
JL450 JL438 JL439 JL440 JL441 JL442
S401 XX S412 S408 S404 S406 S403
REC
REW
CHANNEL/ TRACKING +
EASY SET UP
REALITY REGENERATOR
CN405
EJECT 1
D_GND 2
POWER 3
TO JK-178 BOARD CN802
(SEE PAGE 4-29)
R415 R416 R417 R418
R407 33
R428 R432 R431
JL443 JL444 JL445 JL446 JL447 JL448 JL449
S411 S410 S413 S409 S405 S423 S426 S425
STOP
PLAY
FF
PAUSE
CHANNEL/ TRACKING -
CHANNEL/ TRACKING -
SYNC
INPUT SELECT
IC403
IC403
REMOTE CONTROL RECIEVER
VCC GND OUT
3 2 1
JS402
L421 XX
R401
C406 10V
JL401
C405 B
R402 1/4W
REMOCON MS1
FUNC KEY1 MS2
FUNC KEY2 MS3
S OUT0 MS6
S CLK0 MS4
FLD CS MS7
D 5V MS10
KKP + MS11
KKP - MS12
MAIN/SAP TS9
11 TO(3/8)
B+
L420 22uH
JS420 XX
Q450 XX
JS452
D401
JS451 XX
R421
0
R425 82k
1.8
R422 1k
R423 1k
R424 1k
4.9
4.9
2.0-3.1
C422 47u 16V
C423 0.01u B
IC404
DISPLAY CONTROL
IC404 UPD16315GB-3BS
LED1 LED2 LED3 LED4 OSC DOUT DIN CLK STB KEY1 KEY2
VSS VDD G1 G2 G3 G4 G5 G6 G7 G8 G9
44 43 42 41 40 39 38 37 36 35 34
FG1 FG2 FG3 FG4 FG5 FG6
4.9 -11.0 -11.0 -11.0 -11.0 -11.0 -11.1
G10 S18 S17 VEE S16 S15 S14 S13 S12 S11 S10
33 32 31 30 29 28 27 26 25 24 23
-13.3
R-8.6/P-6.2
-6.3
-4.0-0.6
-13.1--10.8
-13.1--10.8
-13.1--10.8
-10.8--3.9
FS16 FS15 FS14 FS13 FS12 FS11 FS10
VSS VDD S1 S2 S3 S4 S5 S6 S7 S8 S9
12 13 14 15 16 17 18 19 20 21 22
4.9 -6.2--1.7 -10.8 -13.1 -13.1 -1.7-0.6 -8.5--3.9 -10.8--6.2 -10.8--6.2 -3.9--1.6
FS1 FS2 FS3 FS4 FS5 FS6 FS7 FS8 FS9
ND420
F- F- G1 G2 G3 G4 G5 G6 N.C N.C P16 P15 P14 P13 P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 F+ F+
FG1 FG2 FG3 FG4 FG5 FG6 FS16 FS15 FS14 FS13 FS12 FS11 FS10 FS9 FS8 FS7 FS6 FS5 FS4 FS3 FS2 FS1
FLUORESCENT INDICATOR TUBE
CN402
KKP + 1
KKP - 2
TIMER SET 3
D_GND 4
JL408 JL409 JL410
TO DI-74 BOARD CN901
(SEE PAGE 4-36)
B-
-13V
F+
F-
(D) GND
(AN) GND
18 TO(7/8)
C427 0.1u B
JS450 XX
D420
C425 50V
R427
C426 XX
C424 0.1u F
C421 16V
B-
16

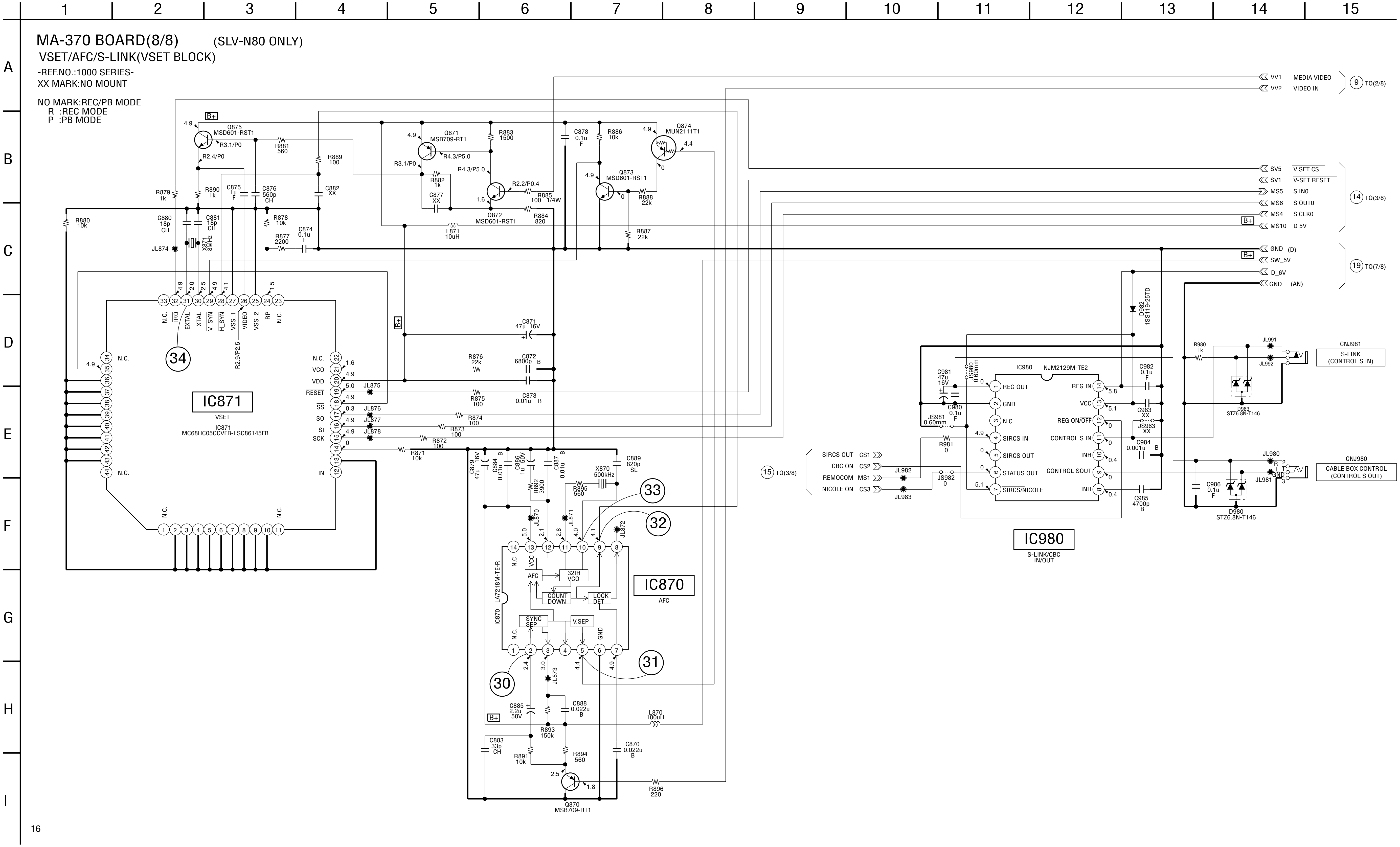
For schematic diagram
- Refer to page 4-5 for printed wiring board.
- Refer to page 4-27 for mounted table.


MA-370 BOARD(7/8)
POWER SUPPLY(PS BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
AC IN 110,120,220V 50/60HZ
CN600 2P
NEUTRAL
N.P.
LIVE
ET600 TERMINAL GROUND
ET601 TERMINAL GROUND
D600 DF06M-6031 MAIN RECT
D601 ERA15-06TP3
T600 CONVERTER TRANSFORMER
Q601 SWITCHING
Q606 SWITCHING
Q602 2SC4040-TL2-Q SWITCHING
IC602 HA17431PA-TZ
IC602 REG
IC601 PQ12RD08
IC601 12V REG
Q605 2SB1398-Q(TA).S0 MTR 12V REG
Q604 MSD601-RST1 PWR CONT SW
Q603 2SC3311A-RTA +B SWITCH
Q607 2SD2394-EF 5V REG
PS600 1.6A
PH600
30V
SW_5V
GND (AN)
SW_12V
GND_AU (AU)
GND (MTR)
MTR_12V
PS1 P CONT M12
PS2 P CONT SW 12
GND (D)
D_6V
-13V
F+
F-
TO(5/8)
TO(4/8)
TO(1/8)
TO(3/8)
TO(2/8)
TO(8/8)
TO(6/8)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G
16

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

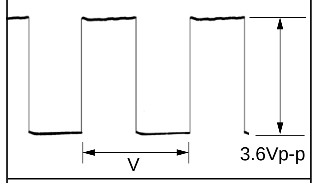
Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

For schematic diagram
- Refer to page 4-5 for printed wiring board.

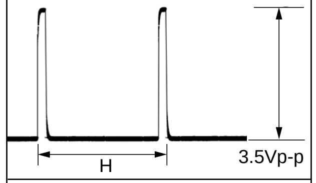

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
MA-370 BOARD(8/8) (SLV-N80 ONLY)
VSET/AFC/S-LINK(VSET BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC871
VSET
IC871
MC68HC05CCVFB-LSC86145FB
IC870
AFC
IC870 LA7218M-TE-R
AFC
32fH VCO
COUNT DOWN
LOCK DET
SYNC SEP
V.SEP
IC980
S-LINK/CBC IN/OUT
IC980 NJM2129M-TE2
REG OUT
GND
N.C
SIRCS IN
SIRCS OUT
STATUS OUT
SIRCS/NICOLE
REG IN
VCC
REG ON/OFF
CONTROL S IN
INH
CONTROL SOUT
Q875 MSD601-RST1
Q871 MSB709-RT1
Q872 MSD601-RST1
Q873 MSD601-RST1
Q874 MUN2111T1
Q870 MSB709-RT1
X871 8MHz
X870 500kHz
D982 1SS119-25TD
D983 STZ6.8N-T146
D980 STZ6.8N-T146
CNJ981 S-LINK (CONTROL S IN)
CNJ980 CABLE BOX CONTROL (CONTROL S OUT)
VV1 MEDIA VIDEO
VV2 VIDEO IN
9 TO(2/8)
SV5 V SET CS
SV1 V-SET RESET
MS5 S IN0
MS6 S OUT0
MS4 S CLK0
MS10 D 5V
14 TO(3/8)
GND (D)
SW_5V
D_6V
GND (AN)
19 TO(7/8)
SIRCS OUT CS1
CBC ON CS2
REMOCOM MS1
NICOLE ON CS3
15 TO(3/8)
30
31
32
33
34
16

MA-370 BOARD (1/8)
(R/P BLOCK)

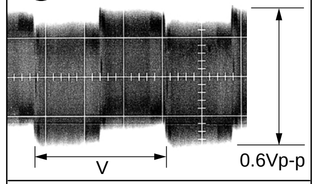
① IC260 ④ REC/PB



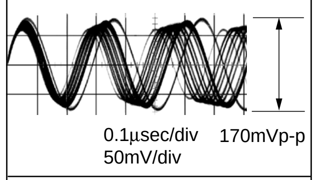
② IC260 ⑤ REC/PB



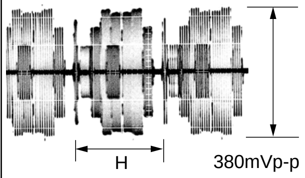
③ IC260 ⑦ PB



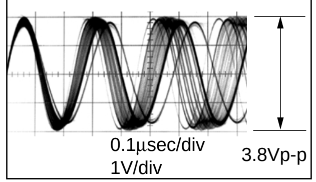
④ IC260 ⑨ REC



⑤ IC260 ⑩ REC

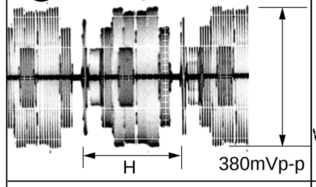


⑥ IC260 ⑰ REC

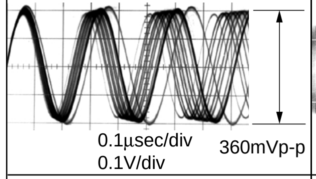


MA-370 BOARD (2/8)
(VA BLOCK)

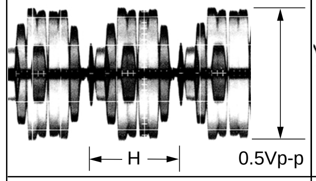
⑦ IC201 ② REC



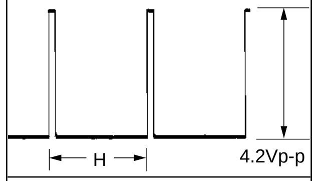
⑧ IC201 ⑦ REC



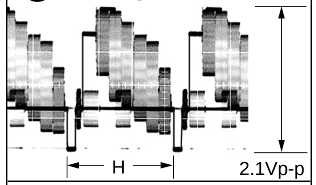
⑨ IC201 ㉓ PB



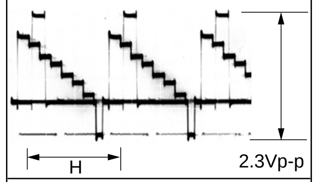
⑩ IC201 ㉘ REC/PB



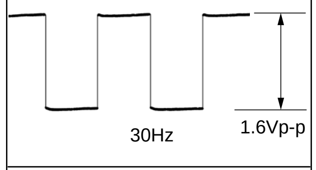
⑪ IC201 ㉙ REC



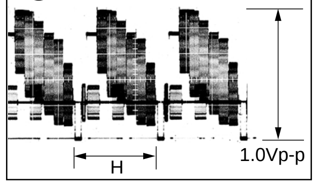
⑪ IC201 ㉙ PB



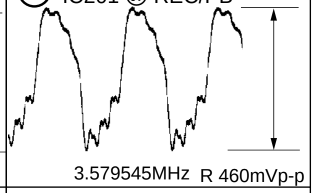
⑫ IC201 (98) RF SW P REC/PB



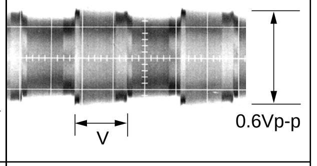
⑬ IC201 ㊲ REC



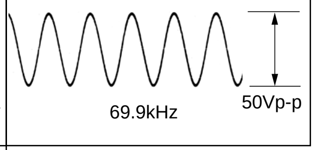
⑭ IC201 (67) REC/PB



⑮ IC201 ① PB

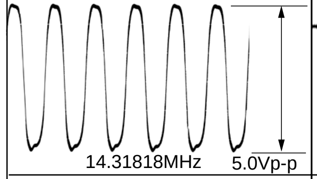


⑯ T380 ⑥ REC

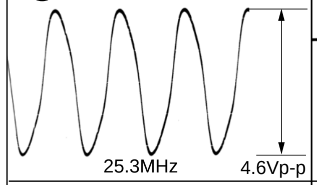


MA-370 BOARD (3/8)
(SS BLOCK)

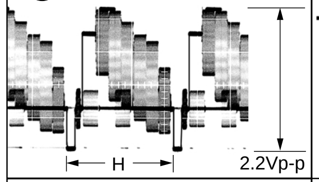
⑰ IC160 ㊴ 4fsc (OUT) REC/PB



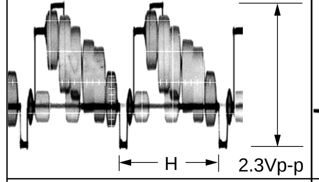
⑱ IC160 ㊺ OSC OUT REC/PB



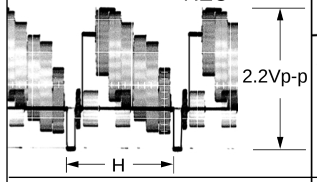
⑲ IC160 ㊿ OSC V IN REC



⑲ IC160 ㊿ OSC V IN PB



⑳ IC160 (52) OSD V OUT REC



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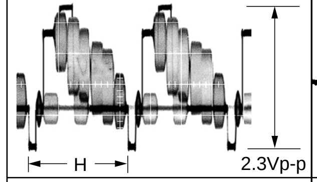
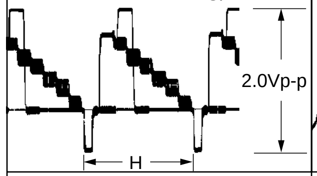
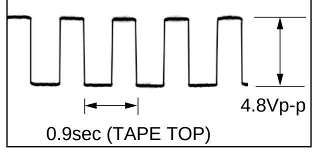


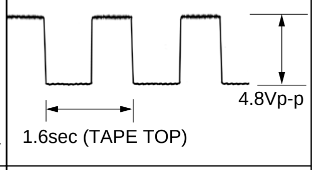
㉑ IC160 (56) C VIDEO IN REC/PB



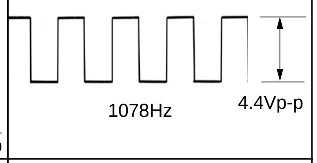
㉒ IC160 (79) S REEL



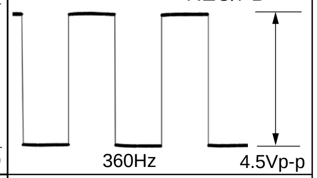
㉓ IC160 (80)T REEL



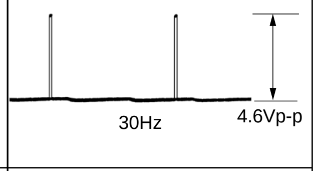
㉔ IC160 (87) CAP FG SP



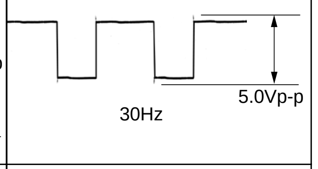
㉕ IC160 (89) DRAM FG REC/PB



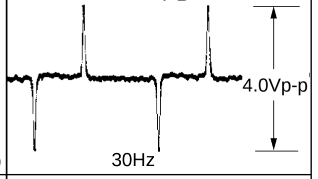
㉖ IC160 (90) DRAM PG REC/PB



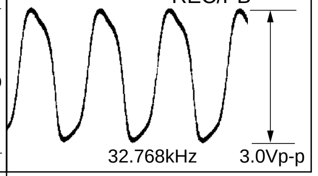
㉗ IC160 (95) CTL+IN REC



㉘ IC160 (97) CTL AMP OUT PB

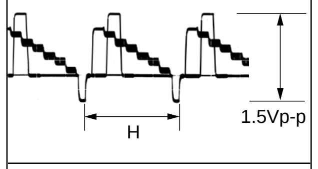


㉙ IC160 ㊱ 32kHz (OUT) REC/PB

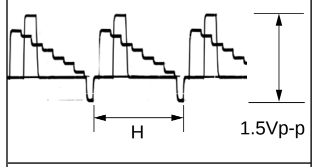


MA-370 BOARD (8/8)
(VSET BLOCK)

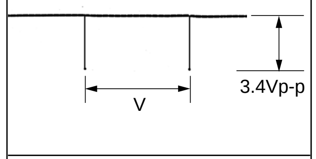
㉚ IC870 ② REC



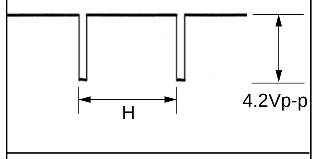
㉚ IC870 ② PB



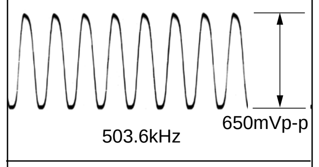
㉛ IC870 ⑤ REC/PB



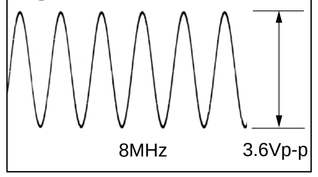
㉜ IC870 ⑨ REC/PB



㉝ IC870 ⑩ REC/PB



㉞ IC871 ㉛ EXTAL REC/PB



*MARKED = MOUNT TABLE (VA BLOCK)

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<tr><th>REF.NO.</th><th>AX10/AX20/
N50/N60</th><th>N70/N80/LX8S</th><th>LS4/LX5</th><th>LX6S/LX7S</th></tr>
<tr><td>C203</td><td colspan="2">××</td><td>0.001u / 50V
CH</td><td>××</td></tr>
<tr><td>C218</td><td>0.01u / 50V
B</td><td colspan="3">××</td></tr>
<tr><td>C252</td><td>××</td><td colspan="3">0.01u / 50V
B</td></tr>
<tr><td>C253</td><td colspan="2">39p / 50V
CH</td><td>××</td><td>39p / 50V
CH</td></tr>
<tr><td>C336</td><td colspan="2">10u / 50V</td><td>××</td><td>10u / 50V</td></tr>
<tr><td>C353</td><td colspan="2">××</td><td>1u / 50V</td><td>××</td></tr>
<tr><td>C355</td><td colspan="2">××</td><td>1u / 50V</td><td>××</td></tr>
<tr><td>C369</td><td colspan="2">××</td><td>4.7u / 50V</td><td>××</td></tr>
<tr><td>C570</td><td>××</td><td colspan="3">0.01u / 50V
B</td></tr>
<tr><td>C571</td><td>××</td><td colspan="3">1u / 16V
F</td></tr>
<tr><td>C572</td><td>××</td><td colspan="3">4.7u / 50V</td></tr>
<tr><td>C573</td><td>××</td><td colspan="3">0.33u / 16V
B</td></tr>
<tr><td>C574</td><td>××</td><td colspan="3">10u / 50V</td></tr>
<tr><td>C575</td><td>××</td><td colspan="3">0.01u / 50V
B</td></tr>
<tr><td>C576</td><td>××</td><td colspan="3">100u / 16V</td></tr>
<tr><td>C577</td><td>××</td><td colspan="3">0.01u / 50V
B</td></tr>
<tr><td>C578</td><td>××</td><td colspan="3">0.01u / 50V
B</td></tr>
<tr><td>CN423</td><td colspan="2">5P</td><td>4P</td><td>5P</td></tr>
<tr><td>D351</td><td colspan="2">××</td><td>1SS119-25T</td><td>××</td></tr>
<tr><td>D352</td><td colspan="2">××</td><td>1SS119-25T</td><td>××</td></tr>
<tr><td>IC570</td><td>××</td><td colspan="3">LA7277M-TLM</td></tr>
<tr><td>J561</td><td>××</td><td>6P</td><td colspan="2">××</td></tr>
<tr><td>J562</td><td></td><td>××</td><td>4P</td><td>6P</td></tr>
<tr><td>JS321</td><td colspan="2">××</td><td>0.60mm</td><td>××</td></tr>
<tr><td>JS323</td><td colspan="2">××</td><td>0.60mm</td><td>××</td></tr>
<tr><td>JS324</td><td colspan="2">××</td><td>0.60mm</td><td>××</td></tr>
<tr><td>JS325</td><td colspan="2">××</td><td>0</td><td>××</td></tr>
<tr><td>JS326</td><td colspan="2">××</td><td>0</td><td>××</td></tr>
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<tr><td>JS501</td><td>××</td><td>0</td><td colspan="2">××</td></tr>
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<tr><td>JS508</td><td></td><td>××</td><td></td><td>0</td></tr>
<tr><td>JS509</td><td></td><td>××</td><td></td><td>0</td></tr>
<tr><td>JS510</td><td></td><td>××</td><td></td><td>0</td></tr>
<tr><td>JS511</td><td>××</td><td></td><td colspan="2">××</td></tr>
<tr><td>JS512</td><td></td><td>××</td><td colspan="2"></td></tr>
<tr><td>JS570</td><td>××</td><td colspan="3">0.60mm</td></tr>
<tr><td>JS571</td><td>0.60mm</td><td colspan="3">××</td></tr>
<tr><td>L207</td><td colspan="2">220uH / ±5%</td><td>××</td><td>220uH / ±5%</td></tr>
<tr><td>L570</td><td>××</td><td colspan="3">100uH / ±5%</td></tr>
<tr><td>Q351</td><td colspan="2">××</td><td>2SC2712Y-T</td><td>××</td></tr>
<tr><td>R204</td><td>3300</td><td colspan="3">8200</td></tr>
<tr><td>R223</td><td colspan="2">680</td><td>××</td><td>680</td></tr>
<tr><td>R352</td><td colspan="2">××</td><td>68k</td><td>××</td></tr>
<tr><td>R353</td><td colspan="2">××</td><td>5600</td><td>××</td></tr>
<tr><td>R355</td><td colspan="2">××</td><td>68k</td><td>××</td></tr>
<tr><td>R356</td><td colspan="2">××</td><td>5600</td><td>××</td></tr>
<tr><td>R373</td><td colspan="2">××</td><td>1k</td><td>××</td></tr>
<tr><td>R570</td><td>××</td><td colspan="3">10k</td></tr>
<tr><td>R571</td><td>××</td><td colspan="3">470</td></tr>
<tr><td>R572</td><td>××</td><td colspan="3">470</td></tr>
<tr><td>R573</td><td>××</td><td colspan="3">8200</td></tr>
<tr><td>R574</td><td>××</td><td colspan="3">1k</td></tr>
<tr><td>R575</td><td>××</td><td colspan="3">4.7k</td></tr>
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*MARKED = MOUNT TABLE (SS BLOCK)

<table>
<tr><th>REF.NO.</th><th>AX10/N50</th><th>AX20/N60</th><th>N70</th><th>N80</th><th>LX4/LX5</th><th>LX6S/LX7S</th><th>LX8S</th></tr>
<tr><td>C113</td><td colspan="4">0.1u / 25V
B</td><td>××</td><td colspan="2">0.1u / 25V
B</td></tr>
<tr><td>C171</td><td colspan="4">0.22 / 5.5V</td><td colspan="3">0.33 / 5.5V</td></tr>
<tr><td>C500</td><td colspan="6">15P</td><td>16P</td></tr>
<tr><td>C501</td><td colspan="6">13P</td><td>18P</td></tr>
<tr><td>IC160</td><td>M37760M8H103GP</td><td colspan="2">M37760M8H104GP</td><td>M37760MCH201GP</td><td colspan="3">M37760M8H107G</td></tr>
<tr><td>IC161</td><td colspan="4">M24C02-WMN6T</td><td colspan="2">M24C02-WMN6T</td><td>M24C02-WMN6T</td></tr>
<tr><td>R159</td><td colspan="4">100k</td><td>××</td><td colspan="2">100k</td></tr>
<tr><td>R160</td><td colspan="4">1k</td><td>××</td><td colspan="2">1k</td></tr>
<tr><td>R161</td><td>××</td><td colspan="2">10k</td><td colspan="2">××</td><td colspan="2">10k</td></tr>
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<tr><td>R182</td><td colspan="3">××</td><td>1k</td><td colspan="3">××</td></tr>
<tr><td>R184</td><td colspan="3">××</td><td>0</td><td colspan="3">××</td></tr>
<tr><td>R186</td><td colspan="3">××</td><td>0.60mm</td><td colspan="3">××</td></tr>
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<tr><td>R510</td><td colspan="2">××</td><td colspan="5">0.60mm</td></tr>
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*MARKED = MOUNT TABLE (FRONT BLOCK)

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LX6S/LX7S</th><th>N70/N80</th><th>LX8S</th></tr>
<tr><td>C405</td><td colspan="3">0.01u / 50V
B</td><td colspan="2">××</td></tr>
<tr><td>C406</td><td colspan="3">100u / 10V</td><td colspan="2">××</td></tr>
<tr><td>C421</td><td colspan="2">××</td><td>47u / 16V</td><td>××</td><td>47u / 16V</td></tr>
<tr><td>C425</td><td colspan="2">10u / 50V</td><td>××</td><td>10u / 50V</td><td>××</td></tr>
<tr><td>CN402</td><td>××</td><td colspan="4">4P</td></tr>
<tr><td>CN403</td><td colspan="3">××</td><td colspan="2">4P</td></tr>
<tr><td>CN404</td><td colspan="3">××</td><td colspan="2">5P</td></tr>
<tr><td>CN405</td><td colspan="3">3P</td><td colspan="2">××</td></tr>
<tr><td>D401</td><td colspan="4">××</td><td>SLR-342VCT</td></tr>
<tr><td>D420</td><td colspan="2">RD5.6ES-T1</td><td>××</td><td>RD5.6ES-T1</td><td>××</td></tr>
<tr><td>IC403</td><td colspan="3">RPM6940</td><td colspan="2">××</td></tr>
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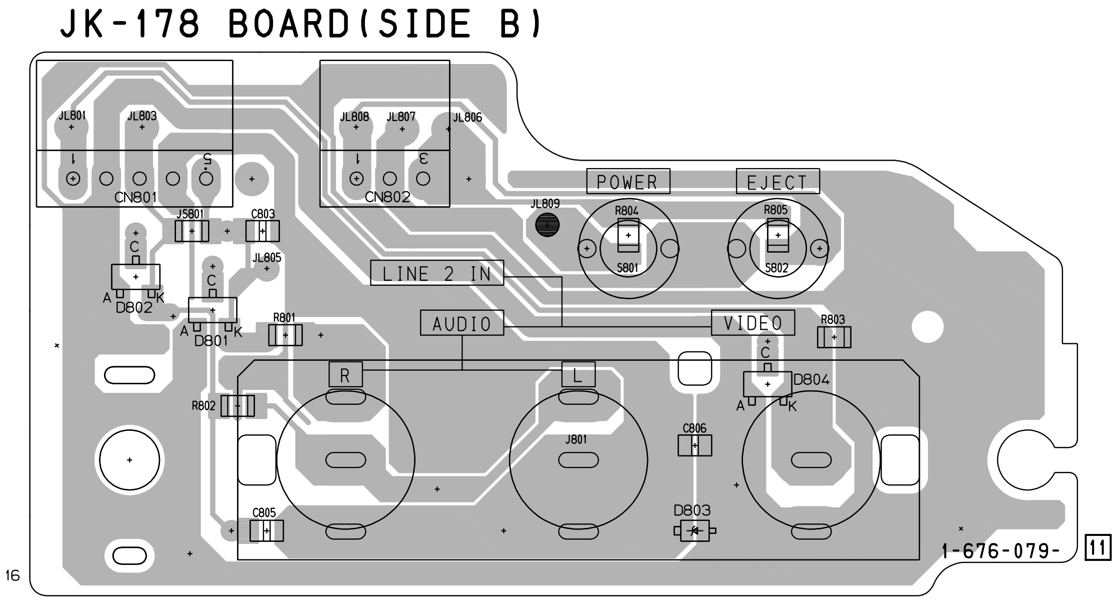
<tr><td>R401</td><td colspan="3">100</td><td colspan="2">××</td></tr>
<tr><td>R402</td><td colspan="3">47k</td><td colspan="2">××</td></tr>
<tr><td>R407</td><td colspan="3">33</td><td colspan="2">××</td></tr>
<tr><td>R409</td><td colspan="3">1500</td><td colspan="2">××</td></tr>
<tr><td>R410</td><td colspan="3">2200</td><td colspan="2">××</td></tr>
<tr><td>R411</td><td colspan="3">2700</td><td colspan="2">××</td></tr>
<tr><td>R412</td><td colspan="3">12k</td><td colspan="2">××</td></tr>
<tr><td>R413</td><td colspan="3">15k</td><td colspan="2">××</td></tr>
<tr><td>R414</td><td colspan="2">××</td><td>39k</td><td colspan="2">××</td></tr>
<tr><td>R415</td><td colspan="3">1500</td><td colspan="2">××</td></tr>
<tr><td>R416</td><td colspan="3">1500</td><td colspan="2">××</td></tr>
<tr><td>R417</td><td colspan="3">2200</td><td colspan="2">××</td></tr>
<tr><td>R418</td><td colspan="3">2700</td><td colspan="2">××</td></tr>
<tr><td>R419</td><td colspan="3">××</td><td colspan="2">2700</td></tr>
<tr><td>R420</td><td colspan="3">××</td><td colspan="2">12k</td></tr>
<tr><td>R421</td><td colspan="4">××</td><td>330</td></tr>
<tr><td>R427</td><td colspan="2">1500</td><td>××</td><td>1500</td><td>××</td></tr>
<tr><td>R428</td><td colspan="3">××</td><td colspan="2">2700</td></tr>
<tr><td>R429</td><td colspan="3">××</td><td colspan="2">15k</td></tr>
<tr><td>R430</td><td colspan="3">××</td><td colspan="2">39k</td></tr>
<tr><td>R431</td><td colspan="3">××</td><td colspan="2">68k</td></tr>
<tr><td>R432</td><td colspan="3">××</td><td colspan="2">4700</td></tr>
<tr><td>S403</td><td colspan="2">××</td><td>○</td><td colspan="2">××</td></tr>
<tr><td>S404</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S405</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S406</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S408</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S409</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S410</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S411</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S412</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S413</td><td colspan="3">○</td><td colspan="2">××</td></tr>
<tr><td>S421</td><td colspan="3">××</td><td colspan="2">○</td></tr>
<tr><td>S422</td><td colspan="3"></td><td colspan="2">○</td></tr>
<tr><td>S423</td><td colspan="3">××</td><td colspan="2">○</td></tr>
<tr><td>S424</td><td colspan="3">××</td><td colspan="2">○</td></tr>
<tr><td>S425</td><td colspan="3">××</td><td colspan="2">○</td></tr>
<tr><td>S426</td><td colspan="4">××</td><td>○</td></tr>
</table>

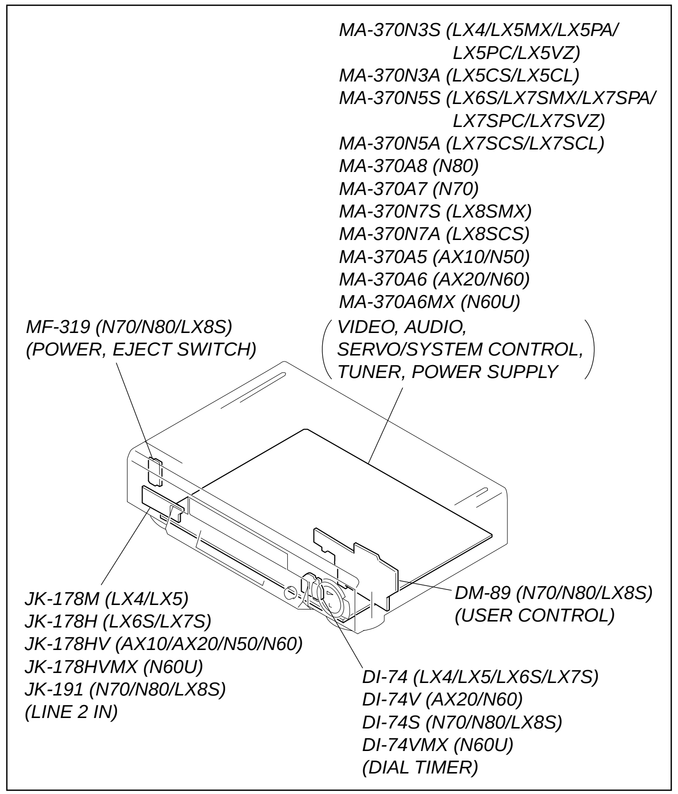
*MARKED = MOUNT TABLE (PS BLOCK)

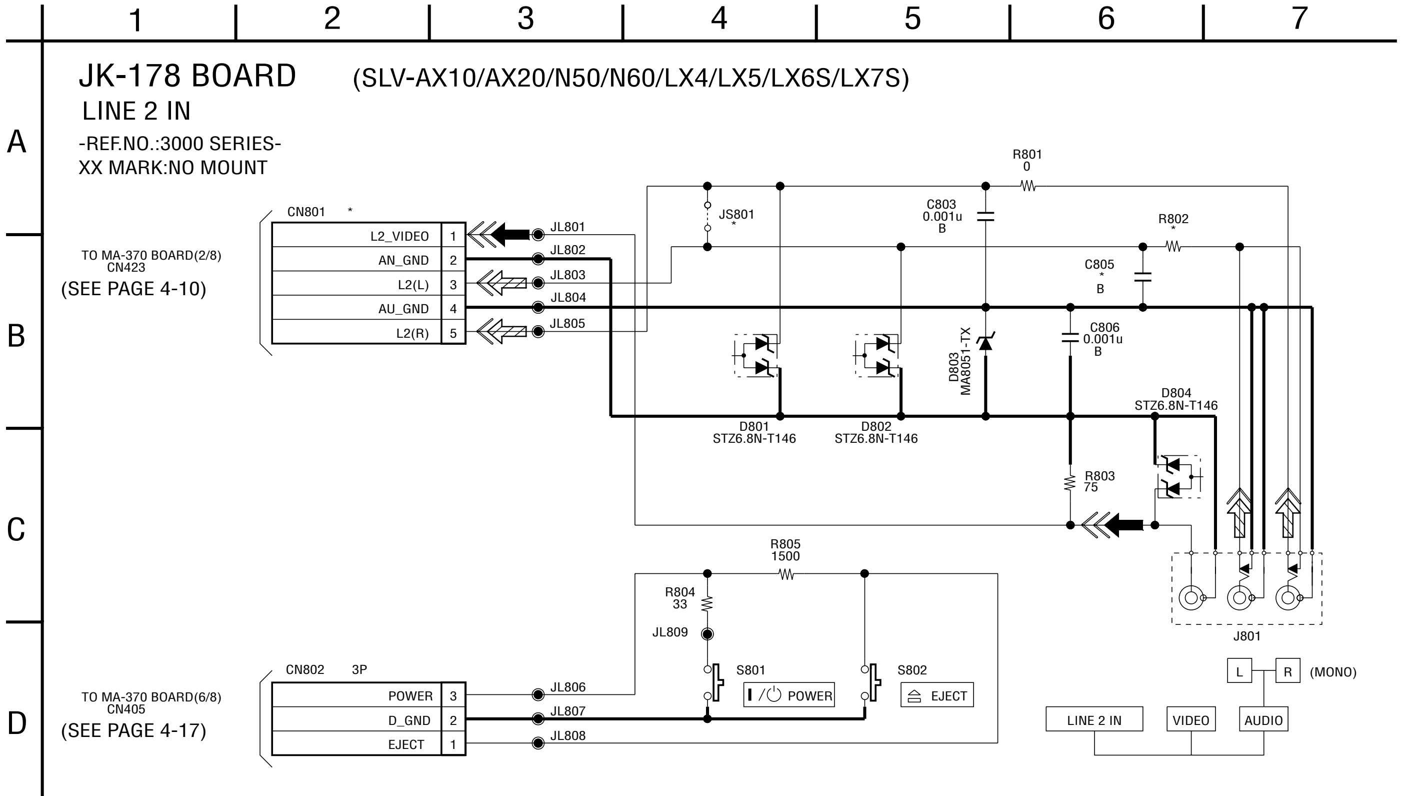
REF.NO.	AX10/N50	AX20/N60/N70/N80	LX4/LX5:MX/PC/PA/VZ	LX5:CL/CS	LX65 LX7S:MX/PC/PA/VZ LX8S:MX	LX7S:CL/CS LX8S:CS
C601	2200p /125V E		0.1u / 250V			
C603	470p / 125V B		470p / 250V B			
C604	1000p / 125V E		470p / 250V B			
C605	82u / 200V		120u / 200V	150u / 400V	120u / 200V	150u / 400V
C606	4.7u / 50V		1u / 100V			
C607	0.033u / 400V		0.01u / 400V			
C608	100p / 2kV B		✕✕			
C609	47p / 2kV SL	✕✕	47p / 2kV SL			
C610	0.047u / 50V		4700p / 50V			
C611	0.047u / 50V		0.039u / 50V			
C618	47u / 50V		220u / 16V			
C631	✕✕		100p / 50V CH			
C638	470u / 10V		22u / 25V			
C639	0.01u / 50V B		✕✕			
D602	AG01A-V0		EG01CVO			
D603	MPG06D-605		✕✕			
D604	RD3.0ES-T1		RD2.7ES-T1			
D605	1SS119-25T		AU02-V0			
D614	✕✕		1SS119-25T			
D615	✕✕		RD5.6ES-T1			
D616	✕✕		RD18ES-T1B			
D617	✕✕		122119-25T			
D619	AU02A-V0		✕✕			
F600	2A / 125V					2A / 220V
JS363	0		✕✕			
JS602	0.60mm		✕✕			
JS604	0.60mm		✕✕			
JS610	✕✕		0.60mm			
JS612	✕✕		0.60mm			
JS613	0.60mm		✕✕			
JS614	0		✕✕			
JS618	0		✕✕			
JS619	✕✕		0			
JS620	✕✕		0			
JS621	✕✕		0			
JS622	0		✕✕			
JS623	✕✕		0			
JS624	✕✕		0			
L605	1uH / ±5%		0.60mm			
L606	1uH / ±5%		✕✕			
PH600	ON3131-S(L)		PC123FY2			
Q601	2SC4054P		2SK2671			
Q604	2SD601A-RTX	MSD601RST1	2SD601A-RTX			
Q606	✕✕		2SC2712Y-T			
R600	6.8M		✕✕			
R602	100k		150k			
R603	10k		68k			
R604	120		330			
R605	620		330			
R606	56		680			
R612	22		✕✕			
R614	15		10			
R626	✕✕		1M			
R627	0.60mm		100k			
R628	✕✕		68k			
R629	✕✕		0.22			
R633	0		820			
R634	✕✕		10k			
R635	✕✕		47			
R636	✕✕		820			
R641	0.47		✕✕			
R642	2.7		22			
R645	0.60mm		5.6			
R646	0.60mm		5.6			
R647	✕✕		10			
VDR600	✕✕	○	✕✕	○	✕✕	○

JK-178 (LINE-2 IN) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM (AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)

— Ref. No. JK-178 Board:3,000 Series —


JK-178 BOARD(SIDE B)
JL801
JL803
CN801
1
5
JL808
JL807
JL806
CN802
1
3
JS801
C803
JL809
POWER
EJECT
R804
R805
S801
S802
D802
D801
JL805
LINE 2 IN
AUDIO
VIDEO
R801
R803
D804
R802
R
L
J801
C806
C805
D803
A
K
C
1-676-079-
11
16


MA-370N3S (LX4/LX5MX/LX5PA/
LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/
LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
VIDEO, AUDIO,
SERVO/SYSTEM CONTROL,
TUNER, POWER SUPPLY
MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)
JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)
DM-89 (N70/N80/LX8S)
(USER CONTROL)
DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)


1
2
3
4
5
6
7
A
B
C
D
JK-178 BOARD
(SLV-AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
LINE 2 IN
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
CN801 *
TO MA-370 BOARD(2/8)
CN423
(SEE PAGE 4-10)
L2_VIDEO 1
AN_GND 2
L2(L) 3
AU_GND 4
L2(R) 5
JL801
JL802
JL803
JL804
JL805
JS801 *
C803
0.001u
B
R801
0
R802
*
C805
*
B
C806
0.001u
B
D803
MA8051-TX
D801
STZ6.8N-T146
D802
STZ6.8N-T146
D804
STZ6.8N-T146
R803
75
R805
1500
R804
33
JL809
J801
CN802 3P
TO MA-370 BOARD(6/8)
CN405
(SEE PAGE 4-17)
POWER 3
D_GND 2
EJECT 1
JL806
JL807
JL808
S801
I/⏻ POWER
S802
⏏ EJECT
L
R
(MONO)
LINE 2 IN
VIDEO
AUDIO

E

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB				

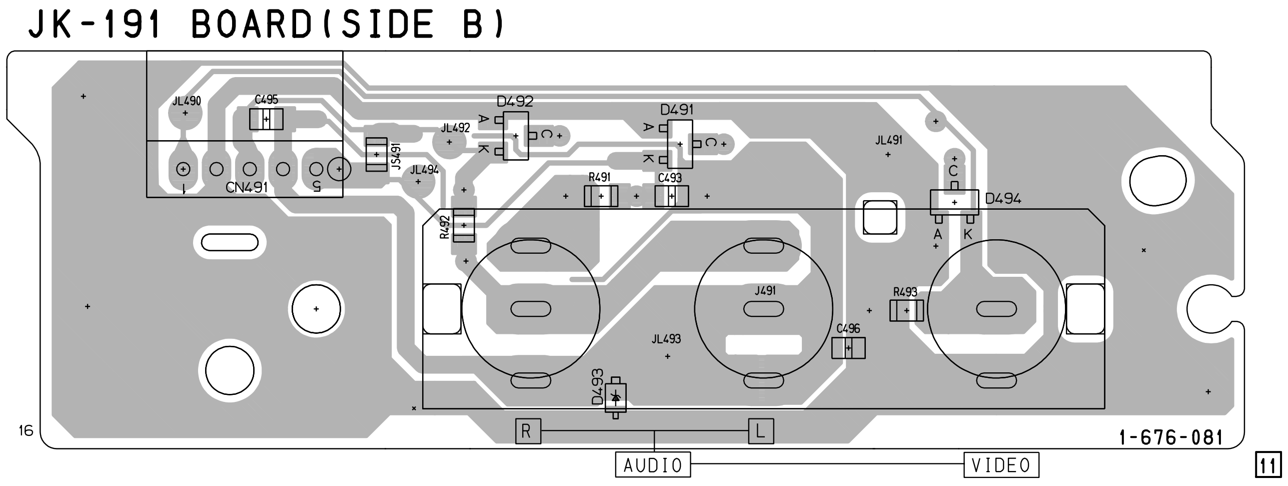
16

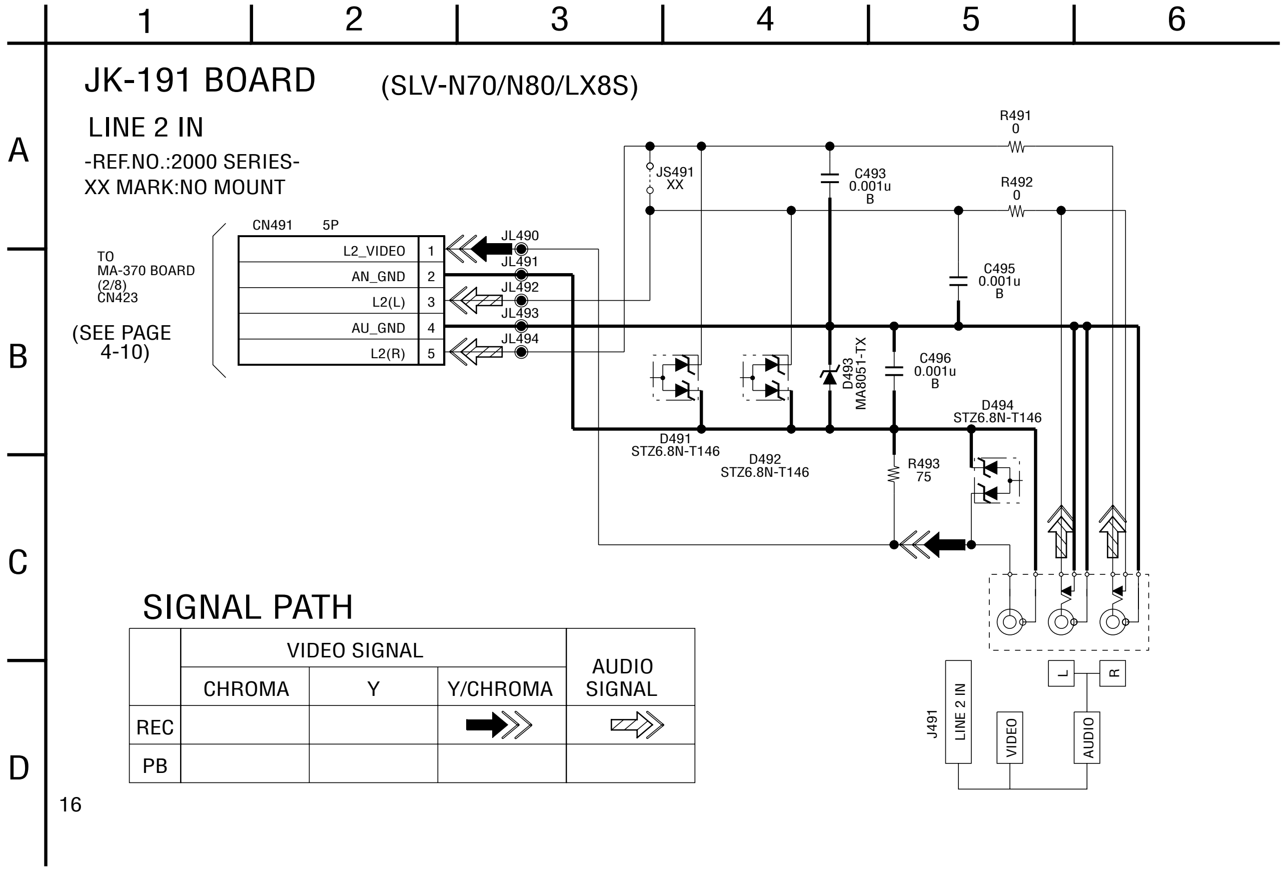
*MARKED : MOUNT TABLE

REF.NO.	AX10/AX20/N50/N60/LX6S/LX7S	LX4/LX5
C805	0.001u/50V	XX
CN801	5P	4P
JS801	XX	0
R802	0	XX

JK-191 (LINE-2 IN) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM (N70/N80/LX8S only)

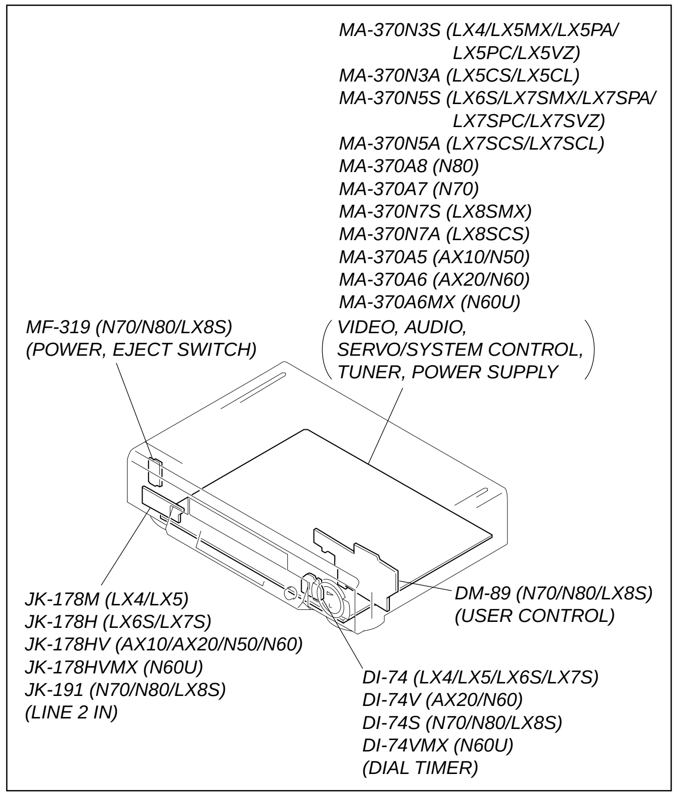
— Ref. No. JK-191 Board:2,000 Series —


JK-191 BOARD(SIDE B)
JL490
C495
CN491
1
5
JS491
JL492
JL494
D492
A
K
C
D491
A
K
C
R491
C493
JL491
D494
A
K
C
R492
J491
R493
C496
JL493
D493
R
L
AUDIO
VIDEO
16
1-676-081
11


1
2
3
4
5
6
A
B
C
D
JK-191 BOARD
(SLV-N70/N80/LX8S)
LINE 2 IN
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
TO
MA-370 BOARD
(2/8)
CN423
(SEE PAGE
4-10)
CN491 5P
L2_VIDEO 1
AN_GND 2
L2(L) 3
AU_GND 4
L2(R) 5
JL490
JL491
JL492
JL493
JL494
JS491
XX
C493
0.001u
B
R491
0
R492
0
C495
0.001u
B
C496
0.001u
B
D493
MA8051-TX
D491
STZ6.8N-T146
D492
STZ6.8N-T146
D494
STZ6.8N-T146
R493
75
J491
LINE 2 IN
VIDEO
AUDIO
L
R
16

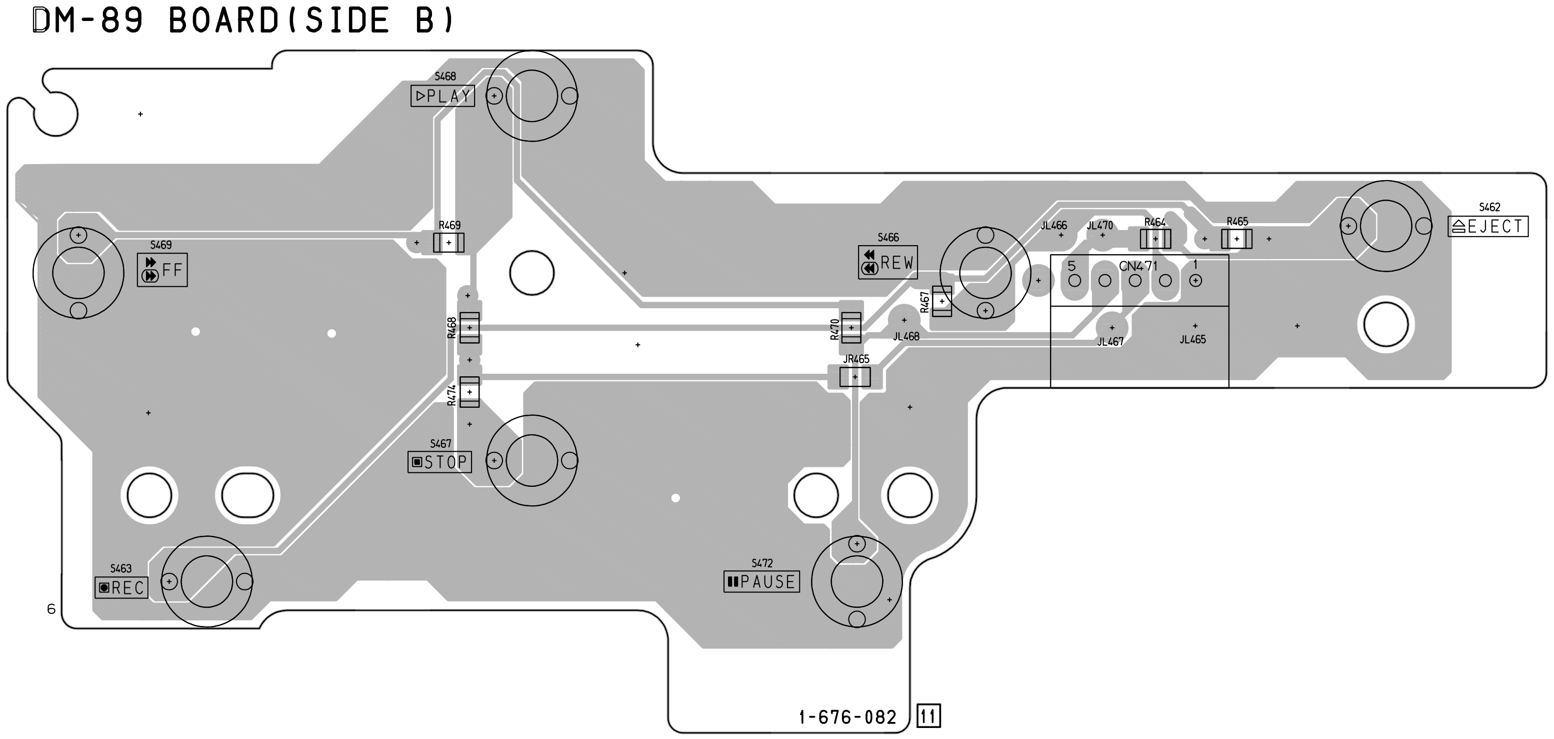
SIGNAL PATH

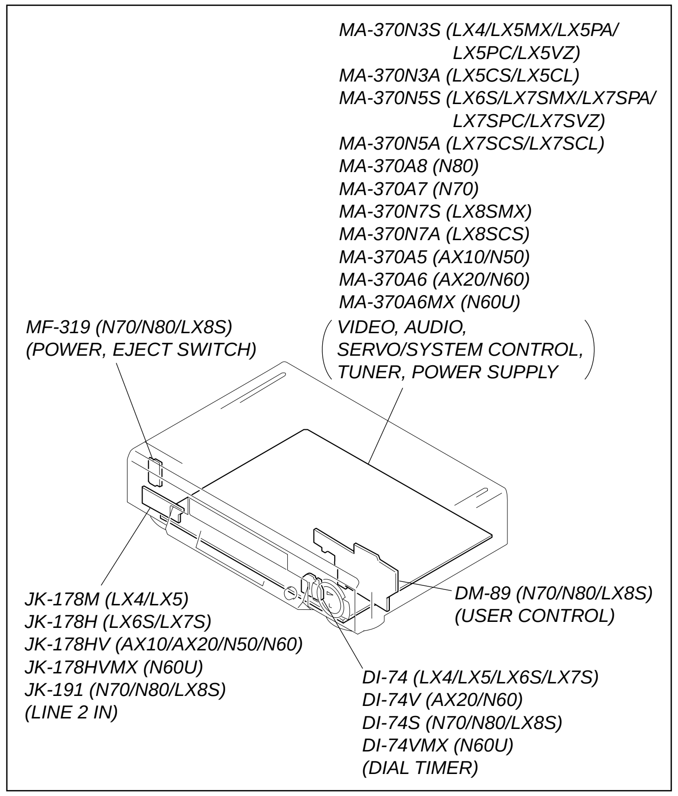
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB				

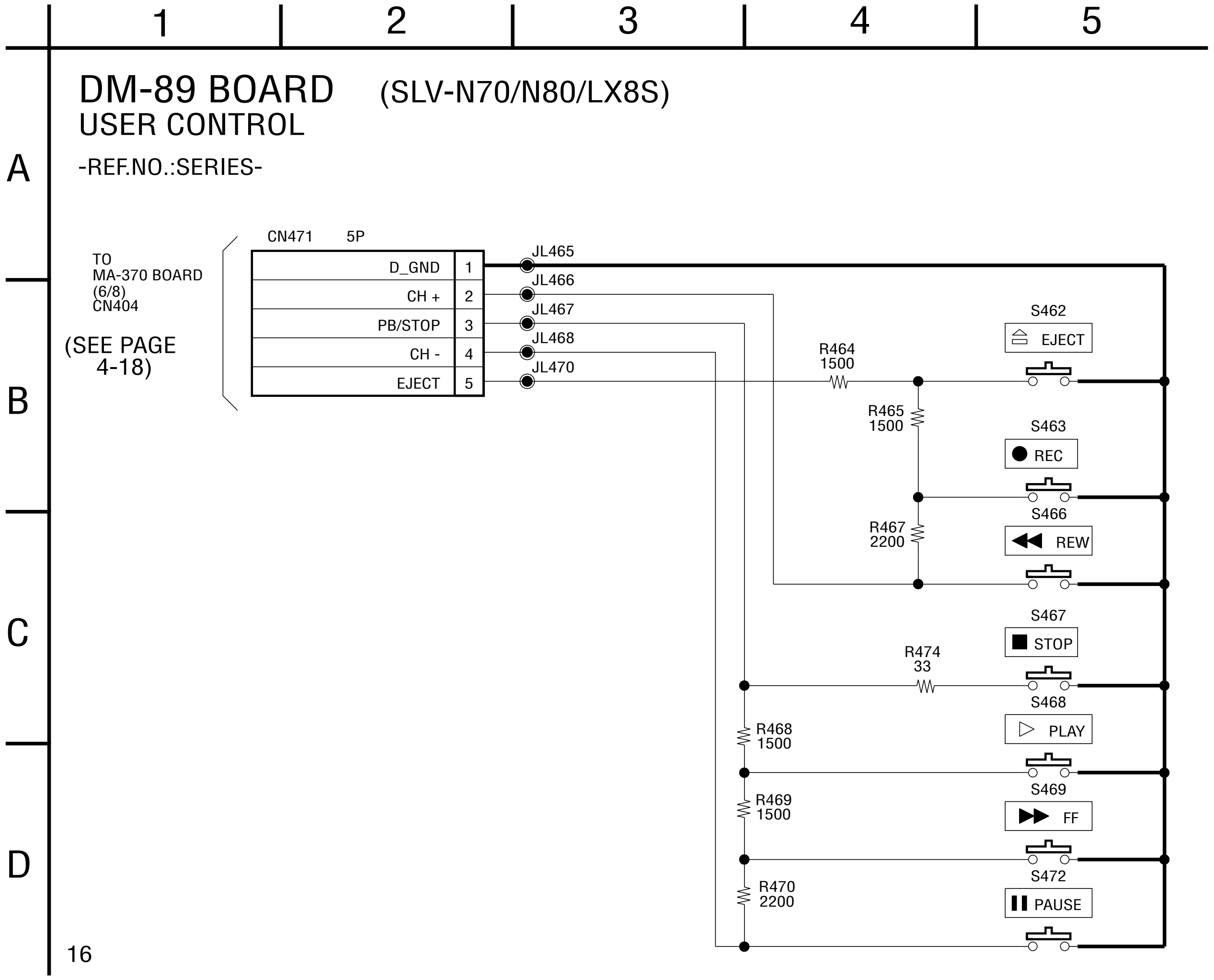

MA-370N3S (LX4/LX5MX/LX5PA/
LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/
LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
VIDEO, AUDIO,
SERVO/SYSTEM CONTROL,
TUNER, POWER SUPPLY
MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)
JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)
DM-89 (N70/N80/LX8S)
(USER CONTROL)
DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)

DM-89 (FUNCTION) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM (N70/N80/LX8S only)

— Ref. No. DM-89 Board:2,000 Series —

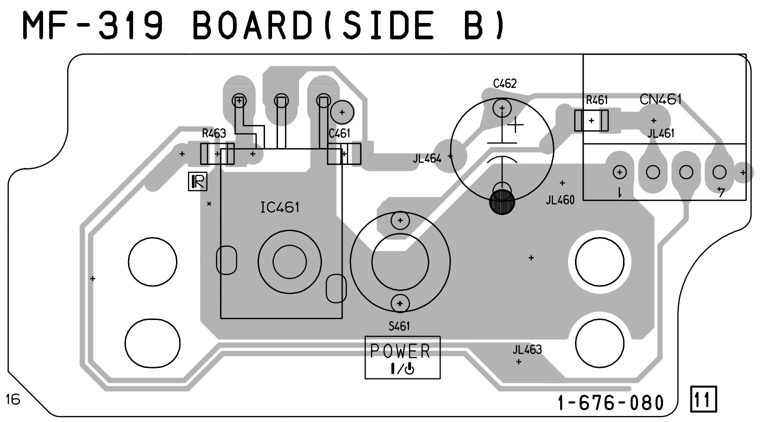

DM-89 BOARD(SIDE B)
S468 ▷PLAY
S469 ▶▶FF
R469
S466 ◀◀REW
JL466
JL470
R464
R465
S462 ⏏EJECT
CN471
5
1
R468
R470
R467
JL468
JR465
JL467
JL465
R474
S467 ■STOP
S463 ●REC
S472 ❚❚PAUSE
6
1-676-082
11

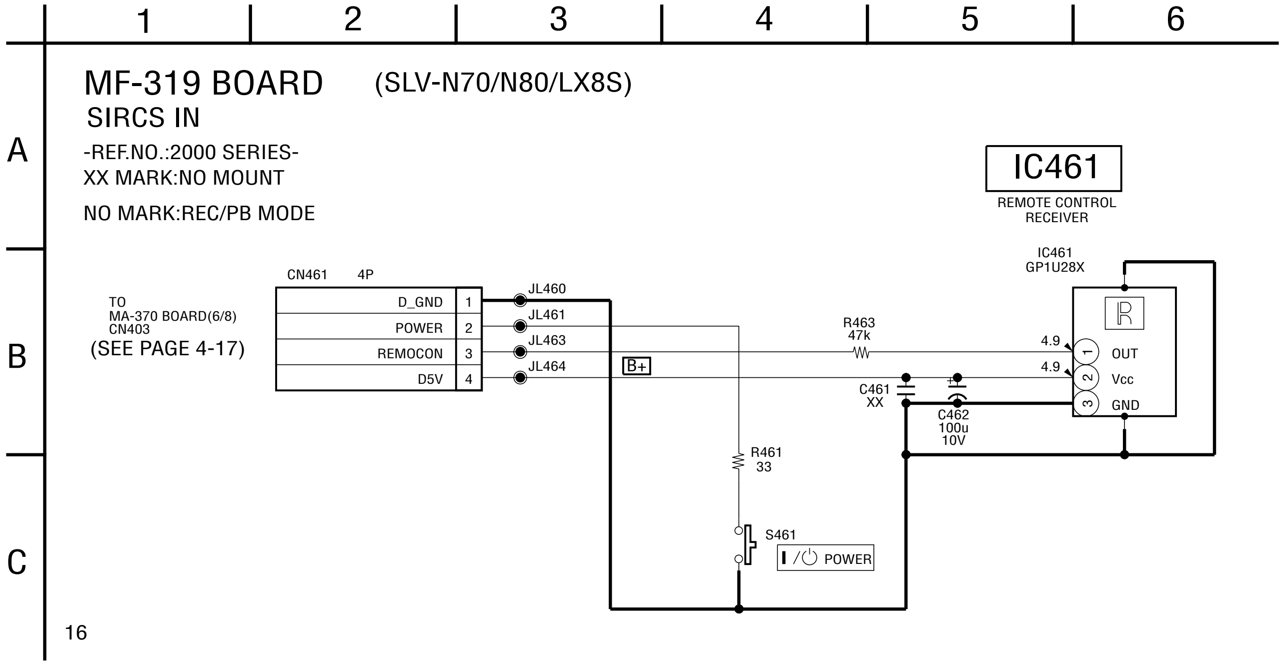

MA-370N3S (LX4/LX5MX/LX5PA/
LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/
LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
(VIDEO, AUDIO, SERVO/SYSTEM CONTROL, TUNER, POWER SUPPLY)
MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)
JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)
DM-89 (N70/N80/LX8S)
(USER CONTROL)
DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)


1
2
3
4
5
A
B
C
D
DM-89 BOARD (SLV-N70/N80/LX8S)
USER CONTROL
-REF.NO.:SERIES-
TO
MA-370 BOARD
(6/8)
CN404
(SEE PAGE
4-18)
CN471 5P
D_GND 1
CH + 2
PB/STOP 3
CH - 4
EJECT 5
JL465
JL466
JL467
JL468
JL470
R464
1500
R465
1500
R467
2200
R474
33
R468
1500
R469
1500
R470
2200
S462 ⏏ EJECT
S463 ● REC
S466 ◀◀ REW
S467 ■ STOP
S468 ▷ PLAY
S469 ▶▶ FF
S472 ❚❚ PAUSE
16

MF-319 (SIRCS) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM (N70/N80/LX8S only)

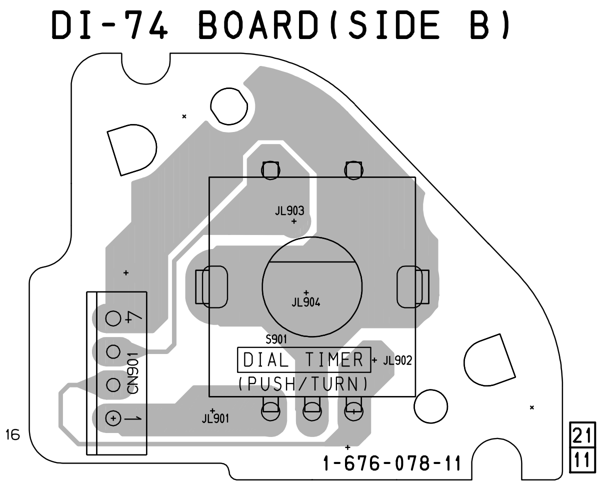
— Ref. No. MF-319 Board:2,000 Series —

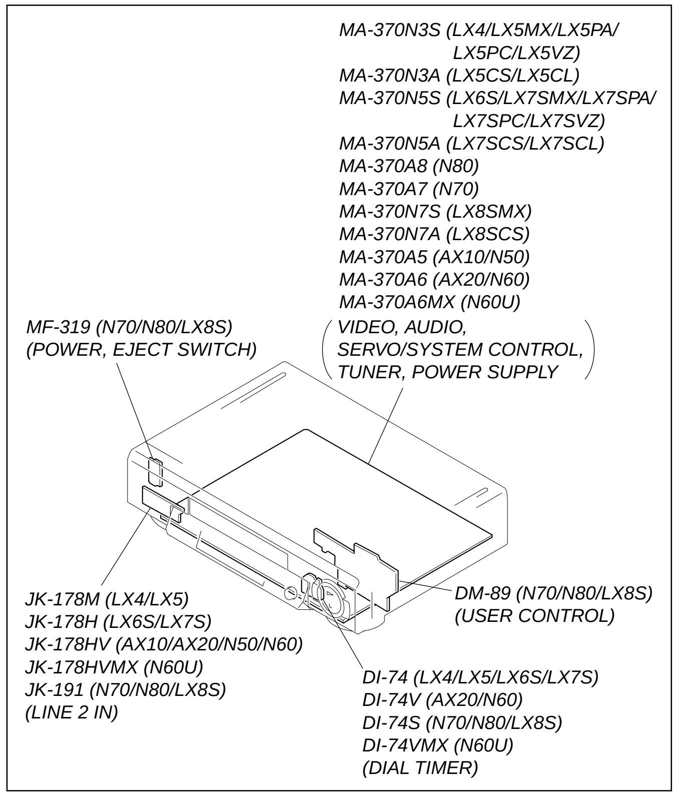

MF-319 BOARD(SIDE B)
C462
R461
CN461
R463
C461
JL461
JL464
JL460
IC461
S461
POWER
I/⏻
JL463
16
1-676-080
11

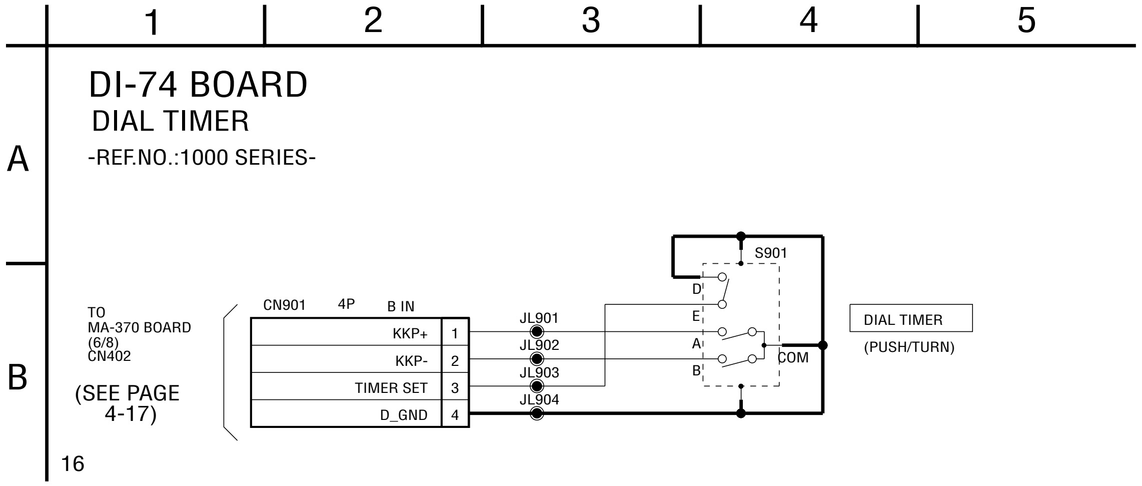

1
2
3
4
5
6
A
B
C
MF-319 BOARD
(SLV-N70/N80/LX8S)
SIRCS IN
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC461
REMOTE CONTROL RECEIVER
IC461
GP1U28X
CN461 4P
TO MA-370 BOARD(6/8) CN403
(SEE PAGE 4-17)
D_GND 1
POWER 2
REMOCON 3
D5V 4
JL460
JL461
JL463
JL464
B+
R463
47k
4.9
4.9
OUT
Vcc
GND
C461
XX
C462
100u
10V
R461
33
S461
I/⏻ POWER
16

DI-74 (DIAL TIMER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM (EXCEPT: AX10/N50)

— Ref. No. DI-74 Board:1,000 Series —


DI-74 BOARD(SIDE B)
JL903
JL904
S901
DIAL TIMER
(PUSH/TURN)
JL902
CN901
JL901
16
1-676-078-11
21
11


MA-370N3S (LX4/LX5MX/LX5PA/LX5PC/LX5VZ)
MA-370N3A (LX5CS/LX5CL)
MA-370N5S (LX6S/LX7SMX/LX7SPA/LX7SPC/LX7SVZ)
MA-370N5A (LX7SCS/LX7SCL)
MA-370A8 (N80)
MA-370A7 (N70)
MA-370N7S (LX8SMX)
MA-370N7A (LX8SCS)
MA-370A5 (AX10/N50)
MA-370A6 (AX20/N60)
MA-370A6MX (N60U)
MF-319 (N70/N80/LX8S)
(POWER, EJECT SWITCH)
VIDEO, AUDIO, SERVO/SYSTEM CONTROL, TUNER, POWER SUPPLY
JK-178M (LX4/LX5)
JK-178H (LX6S/LX7S)
JK-178HV (AX10/AX20/N50/N60)
JK-178HVMX (N60U)
JK-191 (N70/N80/LX8S)
(LINE 2 IN)
DM-89 (N70/N80/LX8S)
(USER CONTROL)
DI-74 (LX4/LX5/LX6S/LX7S)
DI-74V (AX20/N60)
DI-74S (N70/N80/LX8S)
DI-74VMX (N60U)
(DIAL TIMER)


1
2
3
4
5
A
B
DI-74 BOARD
DIAL TIMER
-REF.NO.:1000 SERIES-
S901
CN901 4P
B IN
TO MA-370 BOARD (6/8) CN402
(SEE PAGE 4-17)
KKP+ 1
KKP- 2
TIMER SET 3
D_GND 4
JL901
JL902
JL903
JL904
D
E
A
B
COM
DIAL TIMER
(PUSH/TURN)
16

MEMO

SECTION 5
INTERFACE, IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL — MECHANISM BLOCK INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOARDING	CASSETTE UNLOARDING	TAPE THREADING	TAPE UNTEREADING	STOP	FF	REW	PB	REC
CAM	MA-370 Board IC160㉝	O	*5	H	L	H	L	*5	*5	*5	*5	*5
MODE 1	MA-370 Board IC160㉙	I	—	—	—	—	—	H	H	H	H	H
MODE 2	MA-370 Board IC160㉘	I	—	—	—	—	—	L	L	L	H	H
MODE 3	MA-370 Board IC160㉗	I	—	—	—	—	—	H	H	H	L	L
MODE 4	MA-370 Board IC160㉖	I	—	—	—	—	—	H	L	L	L	L
REC PRF	MA-370 Board IC160㉚	I	L	*1	*1	*1	*1	*1	*1	*1	*1	*1
T REEL	MA-370 Board IC160(80)	I	H/L	H/L	H/L	H/L	H/L	H/L	*2	*2	*2	*2
S REEL	MA-370 Board IC160(79)	I	H/L	H/L	H/L	*2	*2	H/L	*2	*2	*2	*2
END LED	MA-370 Board IC160⑳	O	L	*3	*3	*3	*3	*3	*3	*3	*3	*3
T SENS	MA-370 Board IC160⑦	I	*3	*3	*3	*4	*4	*4	*4	*4	*4	*4
S SENS	MA-370 Board IC160⑥	I	*3	*3	*3	*4	*4	*4	*4	*4	*4	*4

*1 “L” When erasing protection tab is bent. “H” when not bent.
*2 Pulse of period in proportion to reel rotating speed.
*3 Approx. 2 msec period “H” pluse when tape top or end is detected.
*4 Normally “L”. 2 msec period “H” puise when tape top or end is detected.
*5 Hi-Z

5-2. SYSTEM CONTROL — SERVO PERIPHERAL CIRCUIT INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTEREADING	PB	REC
CTL IN+	MA-370 Board IC160(95)	O	*7	*7	*7	*7	*7	*7	*1
DRUM PG	MA-370 Board IC160(90)	I	*3	*3	*3	*3	*3	*3	*3
DRUM FG	MA-370 Board IC160(89)	I	*4	*4	*4	*4	*4	*4	*4
CAP FG	MA-370 Board IC160(87)	I	H/L	*2	*2	*5	*5	*2	*2
CAP RVS	MA-370 Board IC160㉞	O	H/L	L	H	L	H	L	L
CAP ERR	MA-370 Board IC160(76)	O	L	*6	*6	*6	*6	*6	*6
DRUM ERR	MA-370 Board IC160(77)	O	*6	*6	*6	*6	*6	*6	*6

*1. 30Hz pulse.
*2. Pulse of period in propotion to tape speed.
*3. 30Hz “H” pluse.
*4. 720 Hz pulse.
*5. Unstable period pulse.
*6. DC voltage 1 – 5V.
*7. Hi-Z (2.5V)

5-3. SYSTEM CONTROL — SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	I/O level
RESET	MA-370 Board IC160㉞	I	Normally “H”, “L” when service interruption detected or restored.
I2C DATA 1	MA-370 Board IC160㉜	I/O	Serial communication data to EEPROM I2C161.
I2C CLOCK 1	MA-370 Board IC160㉛	O	Serial communication clock to EEPROM I2C161.
I2C DATA VIDEO	MA-370 Board IC160(72)	I/O	Serial communication data to video and audio microprocessor.
I2C CLOCK VIDEO	MA-370 Board IC160(71)	O	Serial communication clock to video and audio microprocessor.
(ARC) S OUT 1	MA-370 Board IC160㊷	I/O	Serial communication data to ARC microprocessor.
(ARC) CLK 1	MA-370 Board IC160㊶	O	Serial communication clock to ARC microprocessor.

5-4. SYSTEM CONTROL AND RF MODULATOR — INPUT SELECTION BLOCK INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	I/O level
ANT SEL	MA-370 Board IC160㉑	O	“L” when RF modulator through.

5-5. SYSTEM CONTROL — VIDEO/RP BLOCK INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	STOP/FF /REW	TAPE LOADING	TAPE UNLOADING	PB	REC	REC/ PAUSE
RF SWP	MA-370 Board IC160⑱	O	*1	*1	*1	*1	*1	*1
QVD	MA-370 Board IC160⑬	O	L	L	L	*2	L	L
C SYNC	MA-370 Board IC160(58)	I	*3	*3	*3	*3	*3	*3

*1. Synchronized with drum rocation, 30Hz 50% duty pulse.
*2. Normal “L”, “H” when video signal is not rgenerated.
*3. Composite sync signal (positive).

5-6. SYSTEM CONTROL — AUDIO BLOCK INTERFACE (MA-370 BOARD IC160)

Signal	Pin No.	I/O	STOP/FF /REW	TAPE LOADING	TAPE UNLOADING	PB	REC	REC/ PAUSE
A MUTE	MA-370 Board IC160(63)	O	L	L	L	L	L	H
AF REC P	MA-370 Board IC160㉒	O	L	L	L	L	L	H

5-7. SERVO/SYSTEM CONTROL MICROPROCESSOR PIN FUNCTIONS (MA-370 BOARD IC160)

Pin No.	Pin Name	I/O	Function
1	DEST	I	Destination control input
2	FULL ERS	—	NC
3	TU AFT	I	Tuner analog AFT input
4	FUNC KEY2	I	Key input
5	FUNC KEY1	I	Key input
6	S SENS	I	Tape end sensor input
7	T SENS	I	Tape top sensor input
8	V RF ENV	I	Video playback signal envelope input
9	AF ANV	I	Hi-Fi audio playback signal envelope input
10	CBC ON	O	Cable box control signal output
11	KKP+	I	ETR pulese signal input
12	KKP–	I	ETR pulese signal input
13	QVD	O	Quasi VD pulese output
14	REMOCON	I	Remote sires signal input
15	C ROT	O	Head AZ signal output
16	HA SWP	O	SP/EP changed head signal
17	ENV SW	I	SP/EP head output lebel ditaction signal
18	RF SWP	O	VIDEO RF switching pulse output.
19	AF SWP	O	AF switching pulse output.
20	END LED	O	END sensor LED output
21	ANT SEL	O	TV/VTR RF modulator control output
22	AF REC P	O	Hi-Fi record control pulse output.
23	FE ON	—	NC
24	CAP RVS	O	Capstan reverse control
25	SUR ON	—	NC
26	MODE4	I	Mechanism section CAM encoder input (data4)
27	MODE3	I	Mechanism section CAM encoder input (data3)
28	MODE2	I	Mechanism section CAM encoder input (data2)
29	MODE1	I	Mechanism section CAM encoder input (data1)
30	REC PRF	I	Erasing protection tab, cassette IN detection input
31	I2C CLK EEP	I/O	HC CLOCK line (EEPROM)
32	I2C DATA EEP	I/O	HC DATA line (EEPROM)
33	CAM	O	Cam motor control signal output
34	RESET	I	System reset input
35	32kHz (in)	I	Sub clock 32MHz
36	32kHz (out)	O	Sub clock 32MHz
37	Vcc	I	5V
38	4fsc (in)	I	Main clock input
39	4fsc (out)	O	Main clock output
40	Vss	—	Ground
41	ARC CLK	O	Rearityregenarator (ARC) control clock signal
42	ARC DATA	O	Rearityregenarator (ARC) control data signal
43	CLK SEL	I	CLOCK seleal “L” Sub clock, “H” main and sub clock.
44	OSC IN	I	OSD clock input
45	OSC OUT	O	OSD clock output
46	NUB	—	Ground
47	LPF	I/O	fsc filter
48	$\overline{\text{SP}}$	O	“L” output when SP mode.
49	OSD GND	—	Ground
50	OSD V IN	I	OSD Video signal input.

Pin No.	Pin Name	I/O	Function
51	WHITE LEVEL	I	White level signal input
52	OSD V OUT	O	OSD Video signal output
53	OSD Vcc	—	SW 5V (OSD block)
54	HLF	I/O	External low-pass filter for slicer/AFC is connected to this terminal
55	V HOLD	I/O	External capacitor for slicer is connected to this terminal
56	C VIDEO IN	I	Control video signal input (osd, tuner, sorvo)
57	NUA	—	D Ground
58	C SYNC	I	Composite sync input
59	PLL CLK	O	Tuner PLL clock output
60	PLL DATA	O	Tuner PLL data output
61	PLL ENABLE	O	Tuner enable output
62	TA MUTE	O	Tuner audio mute output
63	A MUTE	O	AUDIO mute output
64	P CONT M12	O	Motor 12V control output
65	P CONT SW12	O	SW 12V control output
66	$\overline{\text{FLD CS}}$	O	FLD drive chip select signal output
67	$\overline{\text{V-SET CS}}$	O	V-set micon chip select signal output
68	S OUT0	O	Serial communication signal (FLD, V-SET)
69	S IN 0	I	Serial communication signal (FLD, V-SET)
70	S CLK 0	O	Serial communication signal (FLD, V-SET)
71	I2C CLK	I/O	IIC clock signal (VIDEO, HiFi)
72	I2C DATA	I/O	IIC data signal (VIDEO, HiFi)
73	CBC SIRCS OUT	O	Cable mouse sircs signal output
74	BUZZER	—	NC
75	NICOLE	O	Timing signal output
76	CAP ERR	O	Capstan error D/A output
77	DRUM ERR	O	Drum error D/A output
78	P FAIL	I	Power fail detection input
79	S REEL	I	Supply reel sensor input
80	T REEL	I	Take up reel sensor input
81	DMS+	I	DMS control input
82	DMS–	I	DMS control input
83	$\overline{\text{MAIN}}$/SAP	O	Tuner MAIN/SAP select signal
84	F MONO	O	Tuner audio normal select
85	$\overline{\text{STEREO}}$	I	Tuner Stereo dittection “L” when Stereo mode.
86	$\overline{\text{SAP}}$	I	Tuner SAP dittection “L” when SAP mode.
87	CAP FG	I	Capstan FG signal input
88	AMP Vss	—	Ground
89	DRUM FG	I	Drum FG input.
90	DRUM PG	I	Drum PG input.
91	AMP Vref OUT	O	Analog AMP reference Vcc output
92	AMP Vref IN	I	Analog AMP reference Vcc input
93	RC CHECK	I	Check input
94	CTL–IN	I/O	Control signal IN/OUT
95	CTL+IN	I/O	Control signal IN/OUT
96	AMP C	I	Control signal AC conect
97	CTL AMP OUT	O	Control signal AMP output
98	AMP Vcc	—	D-5V
99	A Vcc	—	D-5V
100	$\overline{\text{V-SET RESET}}$	O	NC

SECTION 6
ADJUSTMENTS

6-1 MECHANICAL ADJUSTMENTS

For the mechanical adjustments, please refer to the "VHS MECHANICAL ADJUSTMENT MANUAL Ⅵ (S MECHANISM)" (9-921-647-11).

6-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 6-6 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30 MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
3) Frequency counter
4) NTSC Pattern generator
5) Remote commander
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio attenuator
10) Alignment tapes
    KRV-51N2 (NTSC) Part No. : 8-192-605-32

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

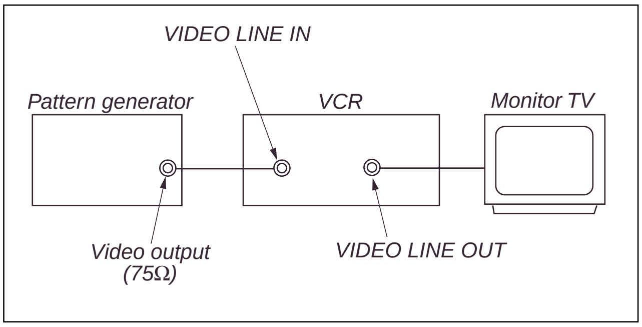

VIDEO LINE IN
Pattern generator
VCR
Monitor TV
Video output
(75Ω)
VIDEO LINE OUT

Fig. 6-2-1

2-1-3. Set-up of Adjustment

In this adjustment, NTSC pattern generator is connected with LINE input terminal. When check to tuner, connected AERIAL terminal. Check that the synchronizing signal of the Y signal has an amplitude of approximately 0.7 V and that the burst signal has an amplitude of approximately 0.3 V and its waveform is flat. And check that the level ratio of burst signal to "red" signal is 0.30 : 0.66. The video signal (color bar) used for electrical aligning this unit is shown in Fig. 6-2-2.

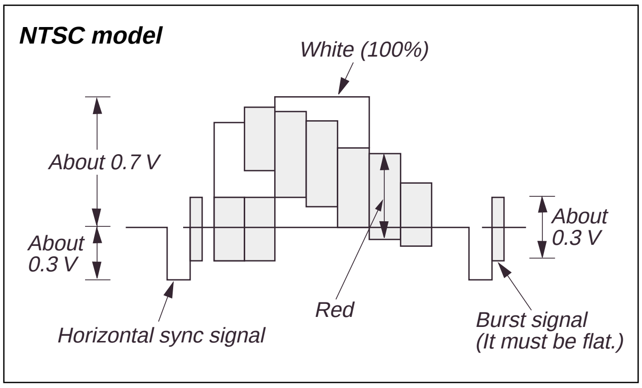

NTSC model
White (100%)
About 0.7 V
About 0.3 V
About 0.3 V
Horizontal sync signal
Red
Burst signal
(It must be flat.)

Fig. 6-2-2 Color Bar Signals of Pattern Generator

2-1-4. Alignment Tape

• Contents of KRV-51N2

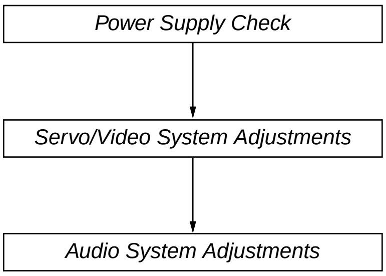
	Mode	Period	Video signal	Audio signal	
				Hi-Fi	Normal
1	SP	7 minutes	Color bar	400Hz (L/R)	400Hz
2		3 minutes	Monoscope		
3	LP	7 minutes	Color bar		
4		3 minutes	Monoscope		

2-1-5. Input/Output Levels and Impedance

Video input: LINE IN
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output: LINE OUT
Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input: LINE IN
Input level: –7.5 dBs
(0 dBs= 0.775 Vrms)
Input impedance: more than 47 kilohms
Audio output: LINE OUT
Standard level: –7.5 dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms

2-1-6. Adjustment Sequence

The adjustments should be performed in the following sequence.



2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (MA-370 Board)

Mode	STANDBY
+30 V Check	
Measurement point	C627 ⊕
Specified value	31.0 to 39.0 V
–11 V Check	
Measurement point	Anode of D420
Specified value	–12.5 to – 9.5 V
D+6 V Check	
Measurement point	Corrector of Q607
Specified value	5.56 to 6.25 V

Mode	E-E
Measuring Instrument	Digital voltmeter
SW+12 V Check	
Measurement point	IC601 pin ②
Specified value	11.7 to 12.3 V
SW+5 V Check	
Measurement point	Emitter of Q607
Specified value	4.8 to 5.4 V
MTR12 V Check	
Measurement point	Correcter of Q605
Specified value	12.5 to 14.5 V
F Check	
Measurement point	ND420 ㉚ to ①
Specified value	2.0 to 5.0V

[Check Method]

1) Each of these supply voltages must meet its specified value.

2-3. SERVO SYSTEM CHECK

2-3-1. RF Switching Position Adjustment (MA-370 Board)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs. To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: CN270 pin ② (PB RF) CH2: CN270 pin ③ (RF SWP)
Measuring instrument	Oscilloscope
Adjusting element	Remote Commander CH+/–
Specified value	A=minimize

[Adjustment Method]

1) Playback the alignment tape.
2) Short JS401 to Ground.
3) Check that “A P” is indicated on FL display.
4) Adjust so that part A becomes minimized at CH +/–.
5) Write data in EEPROM by pressing PAUSE button.

Monoral model:

6) The display “A P” disappears and then the Adjustment mode terminates.

Hi-Fi model:

6) The display changes to “A H” and the mode goes to the HiFi switching position Adjustment.(2-4-2.)

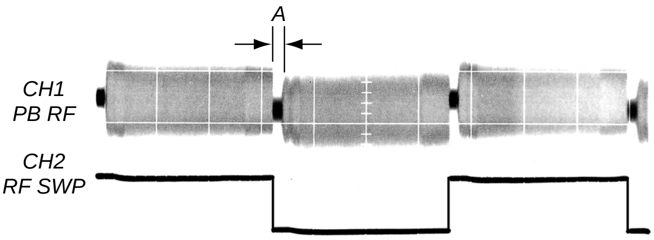


Fig. 6-2-3

2-4. AUDIO SYSTEM ADJUSTMENT

- Adjust both L ch and R ch.

[Connecting Instruments]

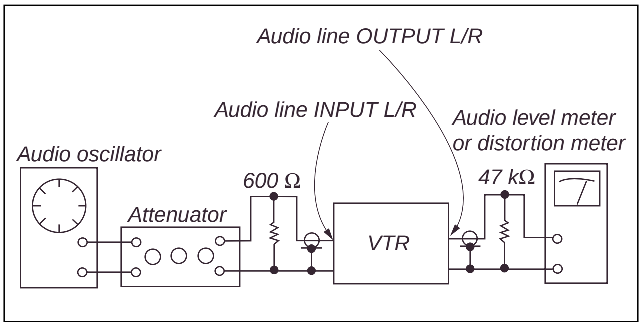


Fig. 6-2-4

2-4-1. Hi-Fi Audio System Adjustment (Hi-Fi model only)

- Perform the adjustment setting the switch on the following positions.
- AUDIO MONITOR .... STEREO

[Adjustment Method]

1. ACE head adjustment.....Refer to the VHS mechanical adjustment manual Ⅵ (S MECHANISM)(9-921-647-11).
2. E-E output level check
3. “Recording Bias Adjustment”

2-4-2. HiFi Switching Position Adjustment (MA-370 Board)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs. To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: Pin ① of CN270 (HF ADJ) CH2: Pin ③ of CN270 (RF SWP)
Measuring instrument	Oscilloscope
Adjusting element	Remote Commander CH +/–
Specified value	B=minimize

[Adjustment Method]

1) Check that “A H” is indicated on FL display.
2) Adjust so that part B becomes minimized at CH +/–.
3) Write data EEPROM by pressing PAUSE button.
4) Check that “A H” indicator turns off.
5) If “A H” indicator is still on, restart RF switching position Adjustment from the beginning.

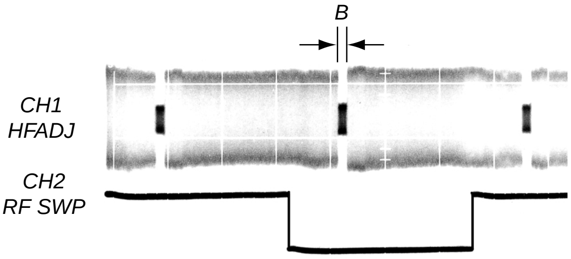


Fig. 6-2-5

2-4-3. Normal Audio System Adjustment

- Make adjustment in the SP mode unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

2-4-4. ACE Head Adjustment

Refer to the VHS mechanical adjustment manual Ⅵ (S MECHANISM) (9-921-647-11).

2-4-5. E-E Output Level Check

[Adjustment purpose]

Confirm that the output level adjust the reference input is within the specification.

Mode	E-E
Signal	400 Hz, –7.5 dBs
Measurement point	J561 L/R
Measuring instrument	Audio level meter
Specified value	–7.5 ± 2 dBs

[Check Method]

1) Input signal of 400 Hz and –7.5 dBs to the J561 L/R.
2) Check that the audio output level is –7.5 ± 2 dBs.

2-4-6. Frequency Response Check

[Adjustment purpose]

Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP mode)
Signal	400 Hz, –17.5 dBs 7 kHz, –17.5 dBs
Measurement point	J561 L/R
Measuring instrument	Audio level meter
Specified value	0 ± 3 dB

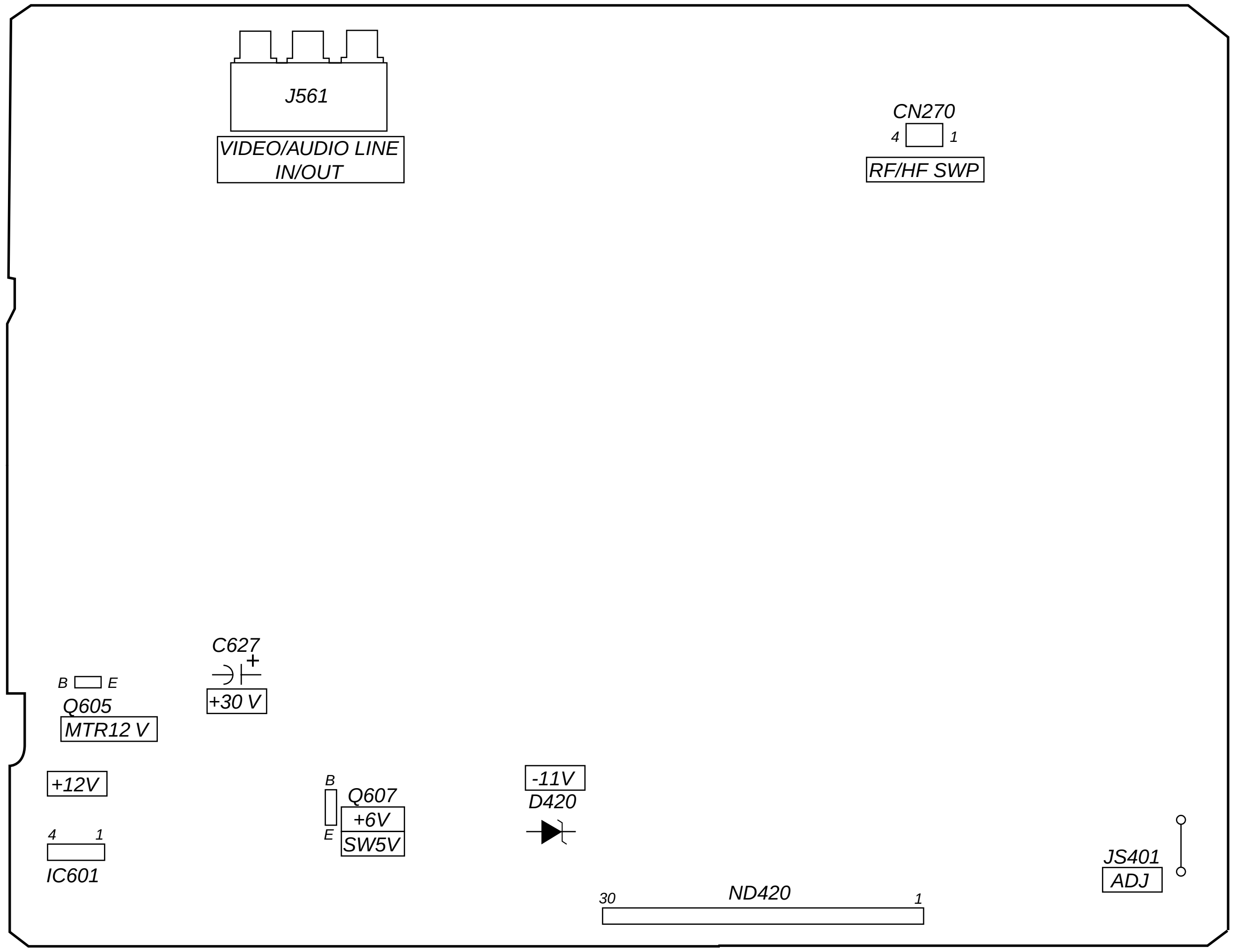
Note: Tape path adjustment must have been completed.

[Confirmation Method]

1) Supply a signal of 400 Hz, –17.5 dBs to J561 L/R.
2) Connect the audio level meter to J561 L/R.
3) Adjust the attenuator so that the audio level meter will indicate –27.5 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output level within a range of the 400 Hz playback output level 0 ± 3 dB.

2-5. ADJUSTING PARTS LOCATION DIAGRAM

MA-370 BOARD
(CONDUCTOR SIDE)


J561
VIDEO/AUDIO LINE IN/OUT
CN270
4
1
RF/HF SWP
C627
+30 V
B
E
Q605
MTR12 V
+12V
4
1
IC601
B
E
Q607
+6V
SW5V
-11V
D420
30
ND420
1
JS401
ADJ

MEMO

SECTION 7
REPAIR PARTS LIST

7-1. EXPLODED VIEWS

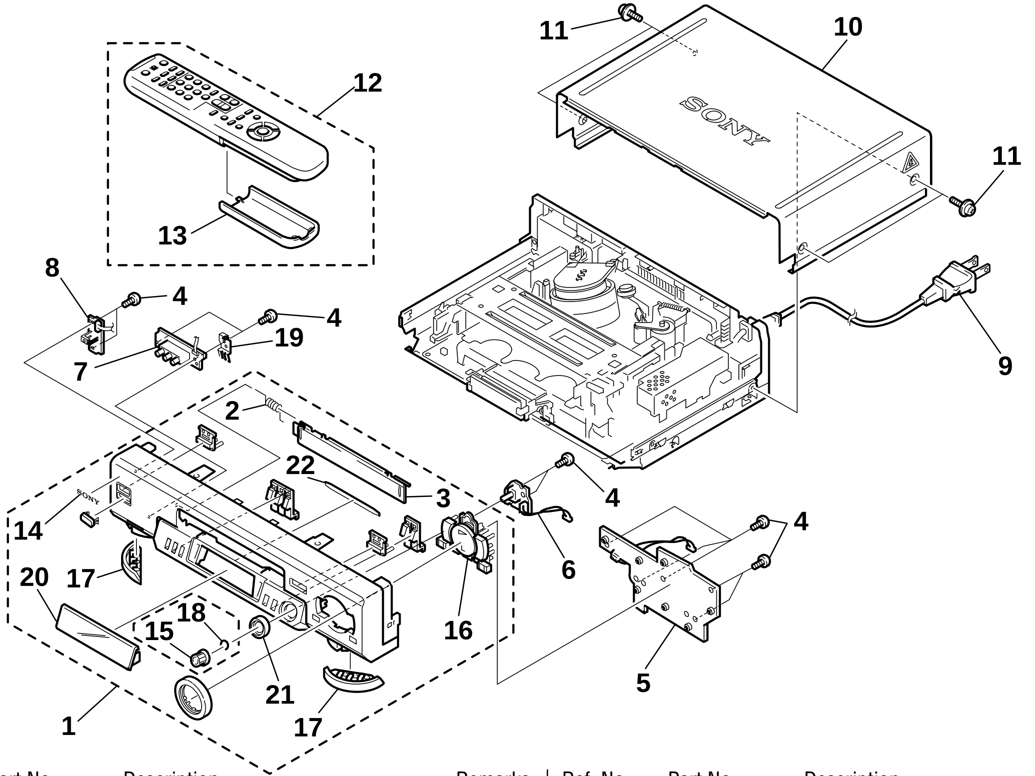
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

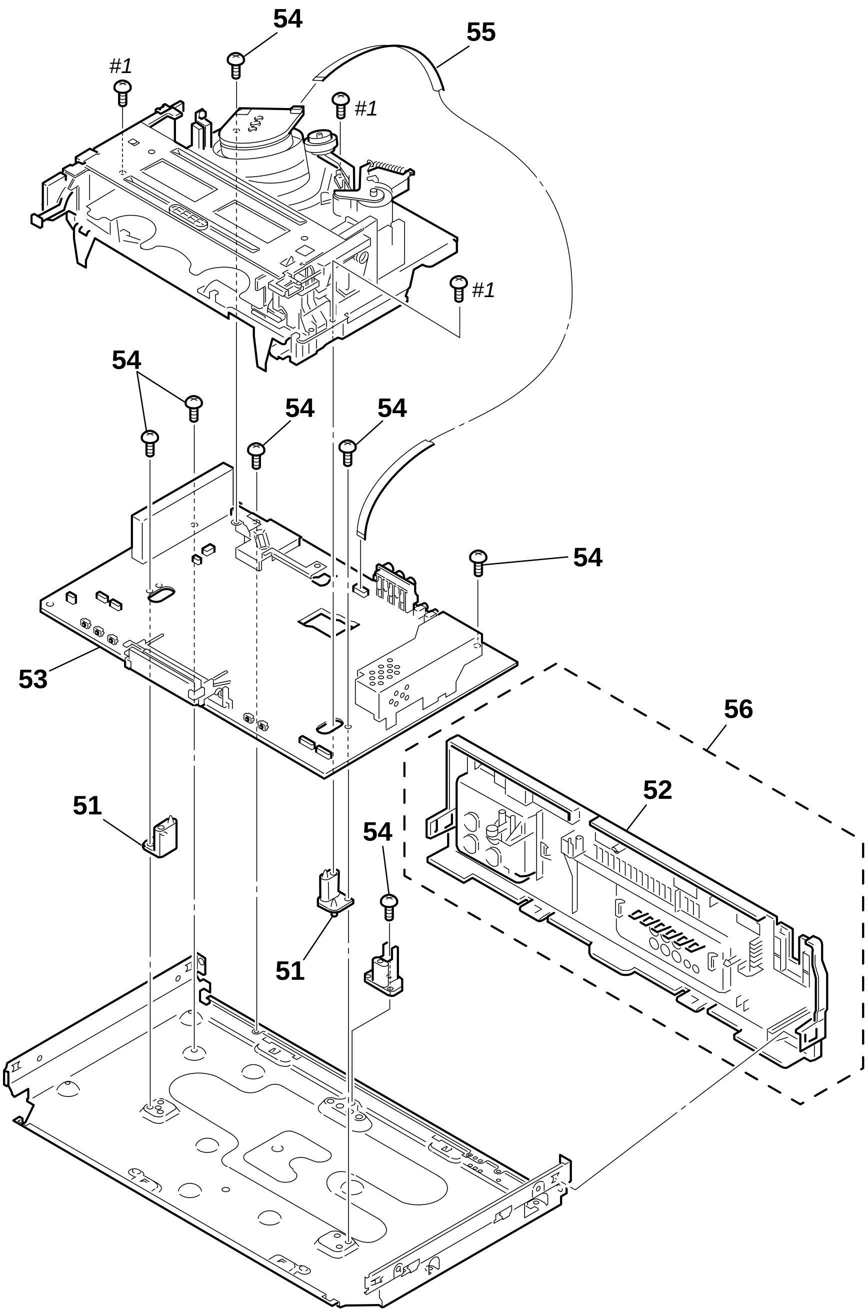
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1-1. FRONT PANEL AND UPPER CASE SECTION



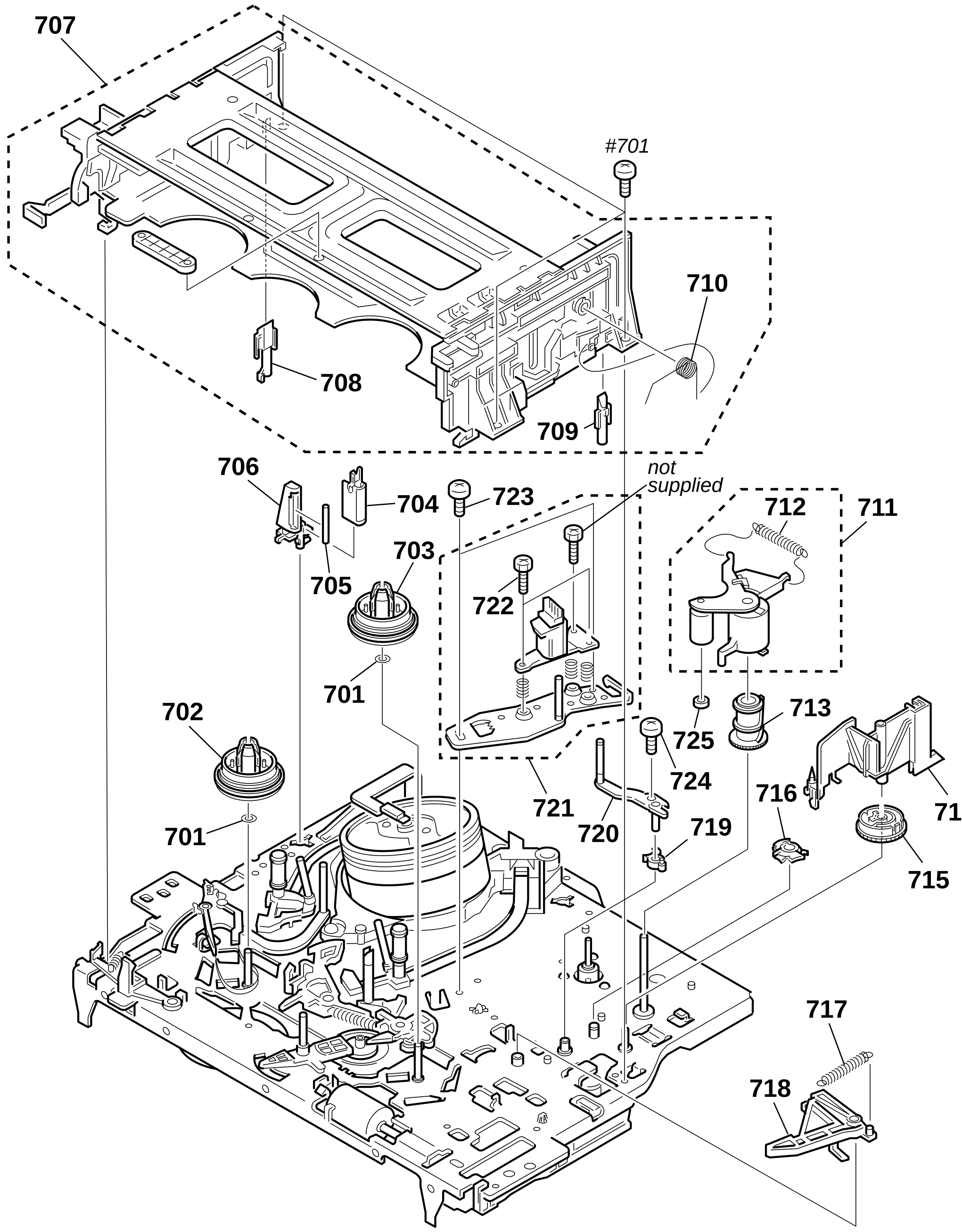
Ref. No.	Part No.	Description	Remarks
1	X-3950-016-1	PANEL ASSY, FRONT (N80)	
1	X-3950-017-1	PANEL ASSY, FRONT (N70)	
1	X-3950-018-1	PANEL ASSY, FRONT (LX8S)	
1	X-3950-068-2	PANEL ASSY, FRONT (LX5)	
1	X-3950-070-2	PANEL ASSY, FRONT (N50)	
1	X-3950-072-1	PANEL ASSY, FRONT (AX10)	
1	X-3950-074-2	PANEL ASSY, FRONT (N60)	
1	X-3950-075-2	PANEL ASSY, FRONT (LX7S)	
1	X-3950-076-2	PANEL ASSY, FRONT (LX6S)	
1	X-3950-077-2	PANEL ASSY, FRONT (LX4)	
1	X-3950-344-2	PANEL ASSY, FRONT (N60U)	
1	X-3950-521-1	PANEL ASSY, FRONT (AX20)	
2	3-953-432-01	SPRING (GE), FL	
3	3-058-039-11	DOOR,CASSETTE (LX4/LX5/LX6S/LX7S)	
3	3-058-053-21	DOOR,CASSETTE (N50C/N60C/N60U)	
3	3-058-053-31	DOOR,CASSETTE (AX10/AX20)	
4	4-921-277-41	SCREW(B2.6 × 8), TAPPING, BIND	
* 5	A-6794-718-A	DM-89 MOUNT (N70/N80/LX8S)	
* 6	A-6794-713-A	DI-74 MOUNT (LX4/LX5/LX6S/LX7S)	
* 6	A-6794-726-A	DI-74V MOUNT (AX20/N60)	
* 6	A-6794-730-A	DI-74S MOUNT (N70/N80/LX8S)	
* 6	A-6794-763-A	DI-74VMX MOUNT (N60U)	
* 7	A-6794-714-A	JK-178M MOUNT (LX4/LX5)	
* 7	A-6794-715-A	JK-178H MOUNT (LX6S/LX7S)	
* 7	A-6794-717-A	JK-191 MOUNT (N70/N80/LX8S)	
* 7	A-6794-725-A	JK-178HV MOUNT (AX10/AX20/N50/N60)	
* 7	A-6794-762-A	JK-178HVMX MOUNT (N60U)	
* 8	A-6794-716-A	MF-319 MOUNT (N70/N80/LX8S)	
⚠9	1-777-852-12	CORD, POWER (LX4/LX5(MX,PA,PC,VZ)/LX6S/LX7S(MX,PA,PC,VZ))	
⚠9	1-777-852-33	CORD, POWER (LX8S(MX))	
⚠9	1-777-854-21	CORD, POWER (LX5(CL,CS)/LX7S(CL,CS))	
⚠9	1-782-000-33	CORD, POWER (LX8S(CS))	
⚠9	1-790-293-21	CORD, POWER (AX10/AX20/N50/N60)	
⚠9	1-790-293-31	CORD, POWER (N70/N80)	
10	3-053-307-61	CASE, UPPER (LX4/LX5/LX6S/LX7S)	
10	3-053-307-71	CASE, UPPER (N60U)	
10	3-057-168-41	CASE, UPPER (N80/LX8S)	
10	3-057-168-51	CASE, UPPER (N70)	
* 10	3-988-080-41	CASE, UPPER (N50/N60)	
* 10	3-988-080-51	CASE, UPPER (AX10/AX20)	
11	3-710-901-01	SCREW, TAPPING (LX4/LX5/LX6S/LX7S)	
11	3-710-901-11	SCREW, TAPPING (AX10/AX20/N50/N60/N70)	
11	3-710-901-61	SCREW, TAPPING (N80/LX8S)	
12	1-418-694-11	COMMANDER, STANDARD (RMT-V266A) (AX10/N50)	
12	1-418-695-11	COMMANDER, STANDARD (RMT-V266B) (AX20/N60)	
12	1-418-696-11	COMMANDER, STANDARD (RMT-V292) (N80)	
12	1-418-696-21	COMMANDER, STANDARD (RMT-V292A) (N70)	
12	1-418-697-11	COMMANDER, STANDARD (RMT-V293) (LX4/LX5)	
12	1-418-698-11	COMMANDER, STANDARD (RMT-V294) (LX6S/LX7S/LX8S)	
13	3-709-128-01	COVER, BATTERY(292/292A) (N70/N80)	
13	3-709-432-01	COVER, REMOTE CONTROL BATTERY (266A/266B/293/294) (AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S/LX8S)	
14	3-943-995-31	EMBLEM (NO.5), SONY (N80/LX8S)	
15	3-057-964-11	KNOB, ETR(U) (N70)	
15	3-058-045-01	KNOB, ETR (LX4/LX5/LX6S/LX7S)	
15	3-058-045-11	KNOB, ETR (N60U)	
15	3-058-058-02	KNOB, ETR (AX20/N60)	
16	3-058-064-01	BUTTON, CENTER (N50/N60)	
16	3-058-064-11	BUTTON, CENTER (AX10/AX20)	
16	X-3950-069-1	BUTTON ASSY, FUNCTION (LX4/LX5/LX6S/LX7S)	
17	3-057-164-01	INSULATOR (N70/N80/LX8S)	
17	3-959-372-21	CUSHION, FOOT (LX4/LX5/LX6S/LX7S)	
18	3-055-077-01	SPRING, ETR (P5)(N70/N80/LX8S)	
19	3-057-165-01	PLATE,EARTH (N70/N80/LX8S)	
20	3-058-038-01	PLATE,FROSTED (LX4/LX5/LX6S/LX7S)	
21	3-058-046-01	ESCUTCHEON, ETR (LX4/LX5/LX6S/LX7S)	
21	3-058-046-11	ESCUTCHEON, ETR (N60U)	
21	3-058-059-01	ESCUTCHEON, ETR (AX20/N60)	
22	3-058-056-01	SEAL,INSULATOR (N50/N60)	
22	3-058-056-11	SEAL,INSULATOR (AX10/AX20)	

7-1-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks
* 51	3-959-383-01	BASE (R), MD	
52	3-057-174-01	PANEL, REAR (N80)	
52	3-057-174-12	PANEL, REAR (N70)	
52	3-057-174-21	PANEL, REAR (LX8S)	
* 52	3-979-652-11	PANEL (M), REAR (AX10/AX20/N50/N60)	
* 52	3-987-076-01	PANEL, REAR (LX6S/LX7S)	
* 52	3-987-076-11	PANEL, REAR (LX4/LX5)	
52	3-987-076-31	PANEL, REAR (N60U)	
* 53	A-6713-535-A	MA-370 N3S COMPLETE PC BOARD (LX4/LX5(MX,PA,PC,VZ))	
* 53	A-6713-536-A	MA-370 N3A COMPLETE PC BOARD (LX5(CL,CS))	
* 53	A-6713-537-A	MA-370 N5S COMPLETE PC BOARD (LX6S/LX7S(MX,PA,PC,VZ))	
* 53	A-6713-538-A	MA-370 N5A COMPLETE PC BOARD (LX7S(CL,CS))	
* 53	A-6713-539-A	MA-370A8 COMPLETE PC BOARD (N80)	
* 53	A-6713-540-A	MA-370A7 COMPLETE PC BOARD (N70)	
* 53	A-6713-541-A	MA-370N7S COMPLETE PC BOARD (LX8S(MX))	
* 53	A-6713-542-A	MA-370N7A COMPLETE PC BOARD (LX8S(CS))	
* 53	A-6713-549-A	MA-370A5 COMPLETE PC BOARD (AX10/N50)	
* 53	A-6713-550-A	MA-370A6 COMPLETE PC BOARD (AX20/N60)	
* 53	A-6713-643-A	MA-370A6MX COMPLETE PC BOARD (N60U)	
54	3-970-608-21	SUMITITE (B3), +BV	
55	1-791-857-11	CABLE, FLAT (FFM-34)	
56	X-3950-105-1	PANEL ASSY, REAR (N80)	
56	X-3950-106-1	PANEL ASSY, REAR (N70)	
56	X-3950-107-1	PANEL ASSY, REAR (LX8S)	

7-1-3. MECHANISM DECK SECTION-1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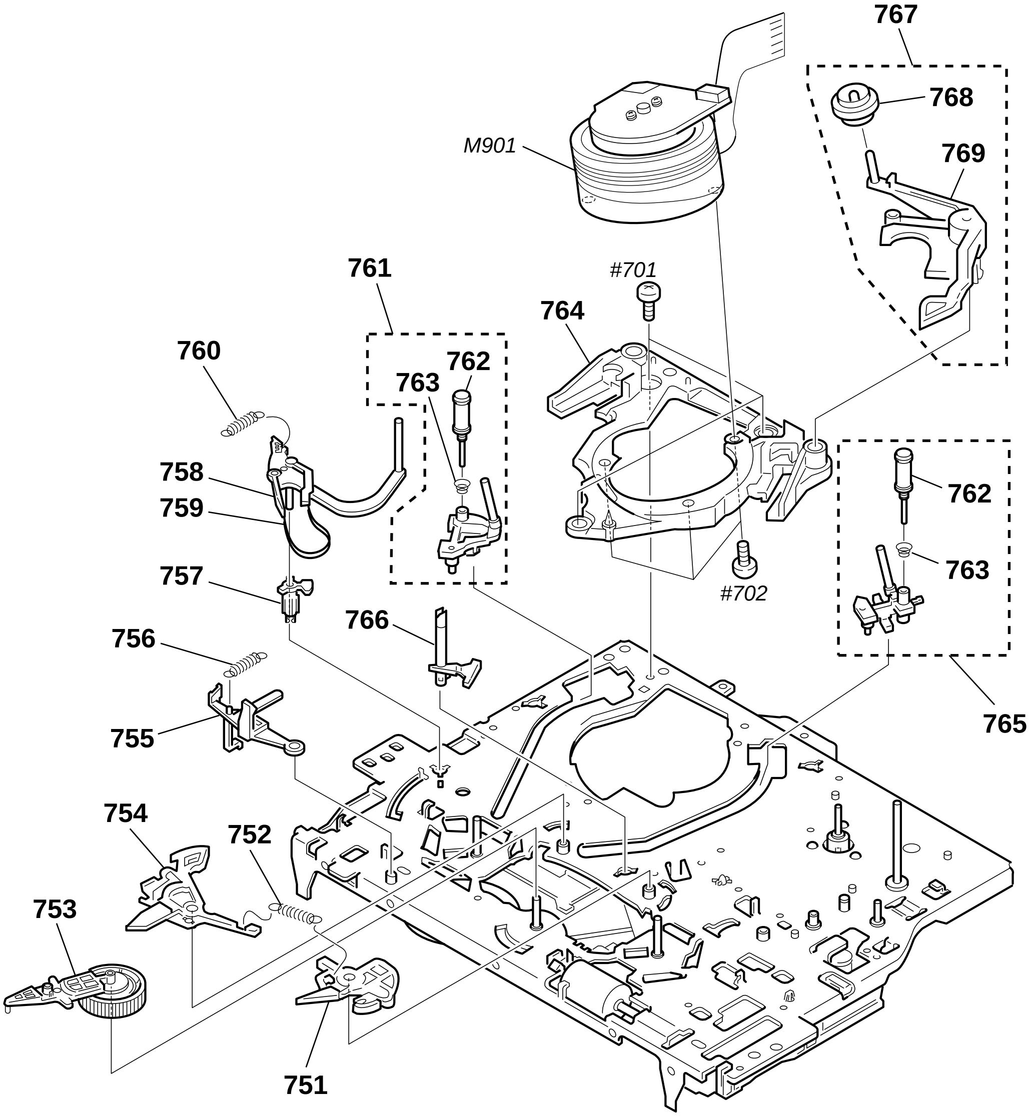
Ref. No.	Part No.	Description	Remarks
701	3-977-509-01	WASHER, THRUST	
702	3-977-507-01	TABLE, REEL (S) (GRAY)	
703	3-977-508-01	TABLE, REEL (T) (BLACK)	
704	1-500-144-11	HEAD, FE	
705	3-977-495-01	SHAFT TG2	
706	3-977-494-01	HOLDER, FEH	
707	A-6759-619-B	FL COMPLETE ASSY BOARD, COMPLETE	
708	3-977-535-01	PLATE, LUMINOUS (END SENSOR)	
709	3-977-536-01	PLATE, LUMINOUS (TOP SENSOR)	
710	3-970-471-01	SPRING (DECK OPEN), TORSION	
711	A-6759-863-B	PRESS BLOCK ASSY, PINCH	
712	3-958-455-01	SPRING (PINCH), TENSION	
713	3-977-447-01	GEAR, ELEVATOR	
714	3-977-514-01	OPENER, LID	
715	3-977-441-03	GEAR, PINCH PRESSING	
716	3-977-445-02	GEAR, TG8 ARM DRIVING	
717	3-977-465-01	SPRING, EXTENSION (RVS BRAKE)	
718	X-3947-582-1	ARM ASSY, RVS BRAKE	
719	3-977-446-01	GEAR, TG8 ARM	
720	X-3947-590-1	TG8 ASSY	
721	A-6759-620-A	HEAD BLOCK ASSY, ACE (TDK)	
722	3-974-556-11	+HEXA TT 2.6 × 9 (TAPER)	
723	3-979-508-01	SCREW +HEXA TP SW 3 × 8	
724	3-719-381-01	SCREW (M2 × 4)	
725	3-736-045-01	BEARING (NO FLANG), BALL	

7-1-4. MECHANISM DECK SECTION-2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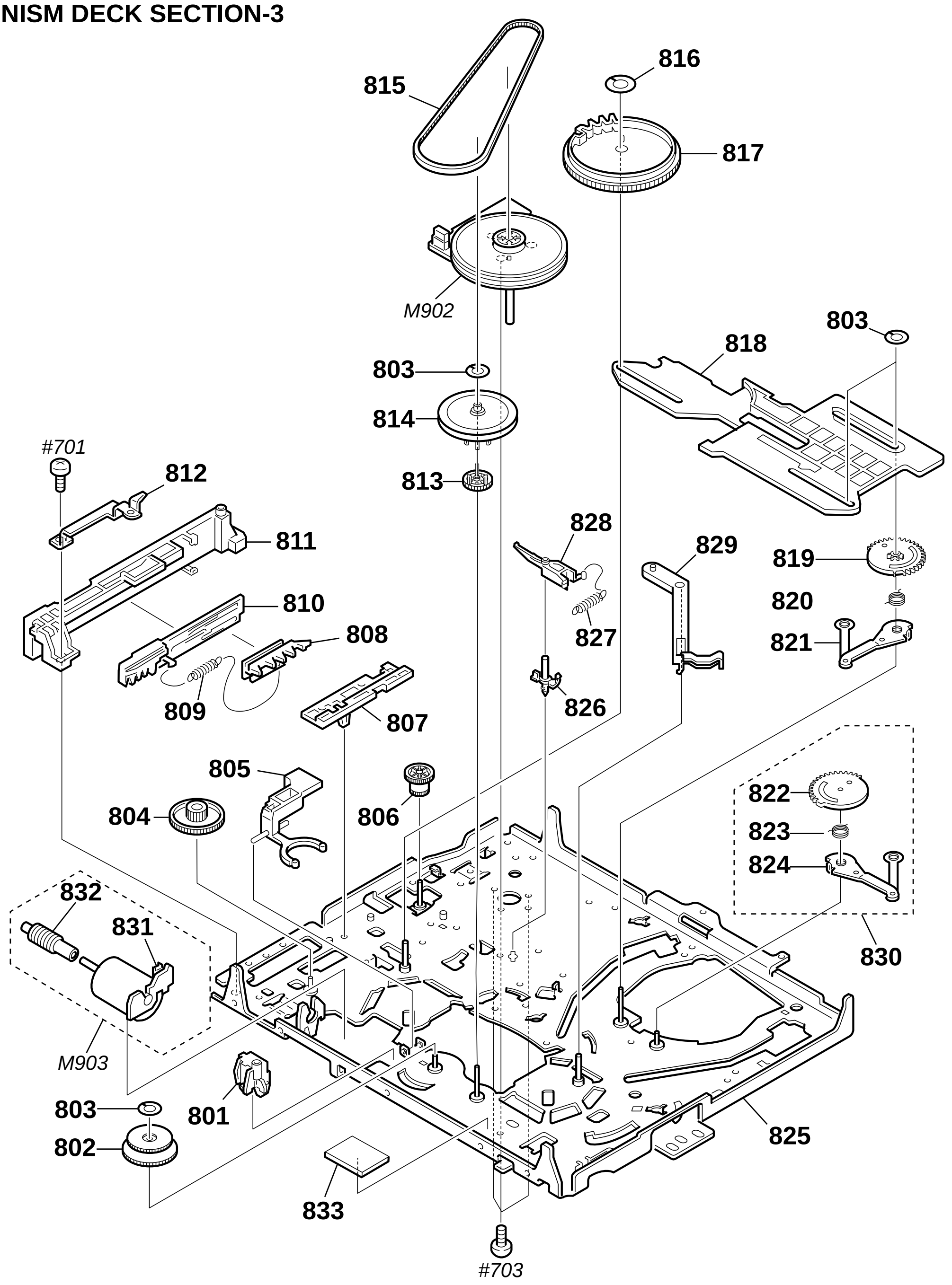
Ref. No.	Part No.	Description	Remarks
751	X-3947-581-4	BRAKE ASSY,MAIN(T)	
752	3-977-462-01	SPRING,EXTENTION. (MAIN BRAKE)	
753	X-3947-573-1	ARM ASSY, PENDULUM	
754	X-3947-580-5	BRAKE ASSY, MAIN(S)	
755	3-977-513-02	LEVER, REC PROOF	
756	3-976-767-01	SPRING, TENS. (REC. PROOF)	
757	3-977-487-01	BOSS, TG1 FULCRUM	
758	X-3947-587-1	TG1 ASSY	
759	X-3947-589-1	BAND ASSY, TG1	
760	3-977-488-01	SPRING (POWER TENSION)	
761	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
762	X-3944-378-1	ROLLER ASSY, GUIDE	
763	3-965-178-01	SPRING	
764	3-969-632-04	BASE, DRUM	
765	A-6750-328-G	SHUTTLE (T) BLOCK ASSY	
766	3-977-501-01	PLATE, LUMINOUS	
767	A-6746-074-G	ROLLER BLOCK ASSY, HC	
768	X-3947-255-1	ROLLER ASSY, HC	
769	3-975-724-07	ARM, HC	
M901	8-839-047-53	DRUM ASSY, DZH-0A0A/Z-RP (AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S)	
M901	8-839-049-51	DRUM ASSY, DZH-0A2A/Z-RP (LX4/LX5)	

7-1-5. MECHANISM DECK SECTION-3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Ref. No.	Part No.	Description	Remarks
801	3-977-437-01	RETAINER,CAM MOTOR	
802	X-3947-584-1	ASSY, REEL DIRECT	
803	3-977-443-01	WASHER, STOPPER	
804	3-977-438-01	WORM - WHEEL	
805	3-977-506-01	ARM, LIMITTER SELECTION	
806	3-977-444-01	GEAR, PINCH TRANSMISSION	
807	3-977-515-01	GUIDE, FL SLIDER	
808	3-977-517-01	PLATE, SLIDE, FL	
809	3-977-519-01	SPRING, TENS. (LIMIT, FL)	
810	3-977-518-02	PLATE, LIMITTER, FL	
811	3-977-516-01	HOLDER, FL SLIDER	
812	3-977-877-01	PLATE, RETAINER	
813	3-977-504-01	GEAR, CLUTCH	
814	X-3947-585-1	GEAR ASSY, PULLEY	
815	3-977-510-01	BELT, RUBBER	
816	3-056-824-01	WASHER, STOPPER	
817	3-977-439-01	GEAR, CAM	
818	3-977-442-03	SLIDER	
819	3-977-455-01	GEAR, LOADING(T)	
820	3-977-456-03	SPRING, TORSION (LOAD T)	
821	X-3947-579-1	LEVER ASSY, LOADING(T)	
822	3-977-451-01	GEAR, LOADING(S)	
823	3-977-452-01	SPRING, TORSION (LOAD S)	
824	X-3947-578-1	LEVER ASSY, LOADING (S)	
825	X-3947-576-2	CHASSIS ASSY, MECHANICAL	
826	3-977-468-01	SHAFT, CAPSTAN BRAKE	
827	3-977-467-02	SPRING, CAP BRAKE	
828	X-3947-583-1	BRAKE ASSY, CAPSTAN	
829	3-977-489-01	ARM, TG1 DRIVING	
830	A-6759-616-A	GEAR BLOCK ASSY, LOADING (S)	
831	1-766-723-21	CONNECTOR, BOARD TO BOAR 3P	
832	3-977-436-01	WORM	
833	3-989-917-01	SPACER (REC PROOF)	
M902	1-698-971-11	MOTOR, DC (CAPSTAN)	
M903	X-3947-577-1	MOTOR ASSY, CAM (LOADING)	

7-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
*	A-6794-713-A	DI-74 BOARD, COMPLETE	(LX4/LX5/LX6S/LX7S)
		*********************	
*	A-6794-730-A	DI-74S BOARD, COMPLETE (N70/N80/LX8S)	
		**********************	
*	A-6794-726-A	DI-74V BOARD, COMPLETE (AX20/N60)	
		**********************	
*	A-6794-763-A	DI-74VMX BOARD, COMPLETE (N60U)	
		*************************	
			(Ref. No.:1,000 Series)
		< SWITCH >	
S901	1-418-156-11	ENCODER, ROTARYRY (DIAL TIMER)	

Ref. No.	Part No.	Description	Remarks
*	A-6794-718-A	DM-89 BOARD, COMPLETE (N70/N80/LX8S)	
		*********************	
			(Ref. No.:2,000 Series)
		< CONNECTOR >	
CN471	1-506-484-11	PIN, CONNECTOR 5P	
		< JUMPER RESISTOR >	
JR465	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< RESISTOR >	
R464	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R465	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R467	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R468	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R469	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R470	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R474	1-216-013-00	METAL CHIP 33 5% 1/10W	
		< SWITCH >	
S462	1-762-196-21	SWITCH, TACT (EJECT)	
S463	1-762-196-21	SWITCH, TACT (REC)	
S466	1-762-196-21	SWITCH, TACT (REW)	
S467	1-762-196-21	SWITCH, TACT (STOP)	
S468	1-762-196-21	SWITCH, TACT (PLAY)	
S469	1-762-196-21	SWITCH, TACT (FF)	
S472	1-762-196-21	SWITCH, TACT (PAUSE)	

Ref. No.	Part No.	Description	Remarks
*	A-6794-715-A	JK-178H BOARD, COMPLETE (LX6S/LX7S)	
		***********************	
*	A-6794-725-A	JK-178HV BOARD, COMPLETE	(AX10/AX20/N50/N60)
		************************	
*	A-6794-762-A	JK-178HVMX BOARD, COMPLETE (N60U)	
		***************************	
*	A-6794-714-A	JK-178M BOARD, COMPLETE (LX4/LX5)	
		***********************	
			(Ref. No.:3,000 Series)
		< CAPACITOR >	
C803	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C805	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	(AX10/AX20/N50/N60/LX6S/LX7S)
C806	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
		< CONNECTOR >	
CN801	1-506-484-11	PIN, CONNECTOR 5P	(AX10/AX20/N50/N60/LX6S/LX7S)
CN801	1-506-483-21	PIN, CONNECTOR 4P (LX4/LX5)	
* CN802	1-568-941-11	PIN, CONNECTOR 3P(LINE 2 IN(VIDEO/AUDIO))	
		< DIODE >	
D801	8-719-067-40	DIODE STZ6.8N-T146	
D802	8-719-067-40	DIODE STZ6.8N-T146	
D803	8-719-422-37	DIODE MA8051	
D804	8-719-067-40	DIODE STZ6.8N-T146	
		< JACK >	
J801	1-580-845-11	JACK, PIN 3P (LINE 2 IN(VIDEO/AUDIO))	(AX10/AX20/N50/N60/LX6S/LX7S)
J801	1-785-622-11	JACK, PIN 2P (LINE 2 IN(VIDEO/AUDIO))	(LX4/LX5)
J801	1-770-021-11	JACK, PIN 3P (LINE 2 IN(VIDEO/AUDIO))	(AX10/AX20/N50/N60/LX6S/LX7S)
		< JUMPER RESISTOR >	
JS801	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5)
		< RESISTOR >	
R801	1-216-295-00	METAL CHIP 0 5% 1/10W	
R802	1-216-295-00	METAL CHIP 0 5% 1/10W	(AX10/AX20/N50/N60/LX6S/LX7S)
R803	1-216-022-00	METAL CHIP 75 5% 1/10W	
R804	1-216-013-00	METAL CHIP 33 5% 1/10W	
R805	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	

Ref. No.	Part No.	Description			Remarks
		< SWITCH >			
S801	1-762-196-21	SWITCH, TACT			
S802	1-762-196-21	SWITCH, TACT			
*	A-6794-717-A	JK-191 BOARD, COMPLETE (N70/N80/LX8S)			
		**********************			
					(Ref. No.:2,000 Series)
		< CAPACITOR >			
C493	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C495	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C496	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN491	1-506-484-11	PIN, CONNECTOR 5P			
		< DIODE >			
D491	8-719-067-40	DIODE STZ6.8N-T146			
D492	8-719-067-40	DIODE STZ6.8N-T146			
D493	8-719-422-37	DIODE MA8051			
D494	8-719-067-40	DIODE STZ6.8N-T146			
		< JACK >			
J491	1-580-845-11	JACK, PIN 3P (LINE 2 IN(VIDEO/AUDIO))			
J491	1-770-021-11	JACK, PIN 3P (LINE 2 IN(VIDEO/AUDIO))			
		< RESISTOR >			
R491	1-216-295-00	METAL CHIP	0	5%	1/10W
R492	1-216-295-00	METAL CHIP	0	5%	1/10W
R493	1-216-022-00	METAL CHIP	75	5%	1/10W
*	A-6713-535-A	MA-370N3S COMPLETE BOARD, COMPLETE (LX4/LX5(MX,PA,PC,VZ))			
		***********************************			
*	A-6713-536-A	MA-370N3A COMPLETE BOARD, COMPLETE (LX5(CL,CS))			
		***********************************			
*	A-6713-537-A	MA-370N5S COMPLETE BOARD, COMPLETE (LX6S/LX7S(MX,PA,PC,VZ))			
		***********************************			
*	A-6713-538-A	MA-370N5A COMPLETE BOARD, COMPLETE (LX7S(CL,CS))			
		***********************************			
*	A-6713-539-A	MA-370A8 COMPLETE BOARD, COMPLETE (N80)			
		**********************************			
*	A-6713-540-A	MA-370A7 COMPLETE BOARD, COMPLETE (N70)			
		**********************************			
*	A-6713-541-A	MA-370N7S COMPLETE BOARD, COMPLETE (LX8S(MX))			
		***********************************			
*	A-6713-542-A	MA-370N7A COMPLETE BOARD, COMPLETE (LX8S(CS))			
		***********************************			
*	A-6713-549-A	MA-370A5 COMPLETE BOARD, COMPLETE (AX10/N50)			
		**********************************			
*	A-6713-550-A	MA-370A6 COMPLETE BOARD, COMPLETE (AX20/N60)			
		**********************************			

Ref. No.	Part No.	Description			Remarks
*	A-6713-643-A	MA-370A6MX COMPLETE BOARD, COMPLETE (N60(U))			
		***********************************			
					(Ref.No. 1,000 Series)
	3-057-386-01	HOLDER, FLO (N70/N80/LX8S)			
	3-058-047-02	BASE, FL (AX20/N60U/LX4/LX5/LX6S/LX7S)			
	3-058-060-01	BASE, FL (AX10/AX20/N50/N60)			
*	3-951-893-01	HEAT SINK (AX10/AX20/N50/N60/N70/N80/LX8S(MX))			
*	3-960-273-01	SPACER, TOP END (AX10/AX20/N50/N60/N70/N80/LX8S)			
*	3-960-274-01	SPACER, LED (AX10/AX20/N50/N60/N70/N80/LX8S)			
*	3-966-865-01	BASE, INDICATION TUBE (N70/N80/LX8S)			
	3-970-608-21	SUMITITE (B3), +BV			
		< CAPACITOR >			
C101	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C103	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C104	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C105	1-128-057-11	ELECT	330uF	20.00%	6.3V
C106	1-124-589-11	ELECT	47uF	20%	16V
C107	1-164-346-11	CERAMIC CHIP	1uF		16V
C108	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C109	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C111	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C113	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
					(AX10/AX20/N50/N60/N70/N80/LX6S/LX7S/LX8S)
C115	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C116	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C140	1-124-584-00	ELECT	100uF	20%	10V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
					(AX10/AX20/N50/N60/N70/N80/LX8S)
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
					(N60U/LX4/LX5/LX6S/LX7S)
C142	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C143	1-126-965-11	ELECT	22uF	20.00%	50V
C144	1-126-965-11	ELECT	22uF	20.00%	50V
C145	1-126-935-11	ELECT	470uF	20.00%	6.3V
C146	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C160	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C161	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C162	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C163	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C164	1-163-237-11	CERAMIC CHIP	27PF	5.00%	50V
C165	1-163-102-00	CERAMIC CHIP	24PF	5.00%	50V
C166	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V
C167	1-163-233-11	CERAMIC CHIP	18PF	5.00%	50V
C168	1-124-584-00	ELECT	100uF	20%	10V
C169	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C170	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C171	1-104-905-11	CAPACITOR	0.22F		5.5V
					(AX10/AX20/N50/N60/N70/N80)
C171	1-127-737-11	DOUBLE LAYER	0.33F		5.5V
					(LX4/LX5/LX6S/LX7S/LX8S)

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Ref. No.	Part No.	Description			Remarks
C172	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C173	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C176	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C187	1-127-573-91	CERAMIC CHIP	1uF	10%	16V
C187	1-164-346-11	CERAMIC CHIP	1uF		16V
C190	1-124-589-11	ELECT	47uF	20%	16V
C201	1-104-760-11	CERAMIC CHIP	0.047uF	10.00%	50V
C202	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C203	1-163-275-11	CERAMIC CHIP	0.001uF	5.00%	50V (LX4/LX5)
C204	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C205	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C206	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C207	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C208	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C209	1-124-589-11	ELECT	47uF	20%	16V
C210	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C211	1-163-239-11	CERAMIC CHIP	33PF	5.00%	50V
C213	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C214	1-163-257-11	CERAMIC CHIP	180PF	5.00%	50V
C215	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C216	1-126-960-11	ELECT	1uF	20.00%	50V
C217	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C218	1-164-232-11	CERAMIC CHIP	0.01uF		50V (AX10/N50/N60)
C220	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C221	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C222	1-126-964-11	ELECT	10uF	20.00%	50V
C223	1-126-965-11	ELECT	22uF	20.00%	50V
C224	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C225	1-126-960-11	ELECT	1uF	20.00%	50V
C226	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C227	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C228	1-124-589-11	ELECT	47uF	20%	16V
C229	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C230	1-164-159-21	CERAMIC	0.1uF		50V
C231	1-124-589-11	ELECT	47uF	20%	16V
C232	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C233	1-124-261-00	ELECT	10uF	20%	50V
C234	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C235	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C236	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C237	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C238	1-124-589-11	ELECT	47uF	20%	16V
C239	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C240	1-124-589-11	ELECT	47uF	20%	16V
C241	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C242	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C243	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C244	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C245	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C246	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C247	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C248	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C249	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V
C250	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C251	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C252	1-164-232-11	CERAMIC CHIP	0.01uF		50V (N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C253	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (EXCEPT LX4/LX5)
C267	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C271	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C272	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C275	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C276	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C278	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C279	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C280	1-124-584-00	ELECT	100uF	20%	10V
C281	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C282	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C283	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C284	1-164-489-11	CERAMIC CHIP	0.22uF	10.00%	16V
C285	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C286	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C303	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (EXCEPT LX4/LX5)
C304	1-164-232-11	CERAMIC CHIP	0.01uF		50V (EXCEPT LX4/LX5)
C306	1-124-589-11	ELECT	47uF	20%	16V (EXCEPT LX4/LX5)
C307	1-124-589-11	ELECT	47uF	20%	16V (EXCEPT LX4/LX5)
C308	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C309	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V (EXCEPT LX4/LX5)
C310	1-104-664-11	ELECT	47uF	20.00%	16V (EXCEPT LX4/LX5)
C311	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C312	1-126-961-11	ELECT	2.2uF	20.00%	50V (EXCEPT LX4/LX5)
C313	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C314	1-104-664-11	ELECT	47uF	20.00%	16V (EXCEPT LX4/LX5)
C315	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50 (EXCEPT LX4/LX5)
C316	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C317	1-126-960-11	ELECT	1uF	20.00%	50V (EXCEPT LX4/LX5)
C318	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C319	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C320	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C322	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT LX4/LX5)
C323	1-163-038-00	CERAMIC CHIP	0.1uF		25V (AX10/AX20/N50/N60/N70/N80/LX8S)
C323	1-163-038-91	CERAMIC CHIP	0.1uF		25V (N60U/LX6S/LX7S)
C324	1-164-232-11	CERAMIC CHIP	0.01uF		50V (EXCEPT LX4/LX5)
C326	1-164-222-11	CERAMIC CHIP	0.22uF		25V (EXCEPT LX4/LX5)
C327	1-164-222-11	CERAMIC CHIP	0.22uF		25V (EXCEPT LX4/LX5)
C330	1-126-160-11	ELECT	1uF	20%	50V (EXCEPT LX4/LX5)

Ref. No.	Part No.	Description				Remarks
C331	1-126-160-11	ELECT	1uF	20%	50V	(EXCEPT LX4/LX5)
C334	1-126-960-11	ELECT	1uF	20.00%	50V	(EXCEPT LX4/LX5)
C335	1-126-960-11	ELECT	1uF	20.00%	50V	(EXCEPT LX4/LX5)
C336	1-124-261-00	ELECT	10uF	20%	50V	(EXCEPT LX4/LX5)
C350	1-126-960-11	ELECT	1uF	20.00%	50V	
C352	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(AX10/AX20/N50/N60/N70/N80/LX8S)
C352	1-163-038-91	CERAMIC CHIP	0.1uF		25V	(N60U/LX4/LX5/LX6S/LX7S)
C353	1-126-160-11	ELECT	1uF	20%	50V	(LX4/LX5)
C354	1-124-261-00	ELECT	10uF	20%	50V	
C355	1-126-960-11	ELECT	1uF	20.00%	50V	(LX4/LX5)
C356	1-126-966-11	ELECT	33uF	20.00%	16V	
C357	1-126-963-11	ELECT	4.7uF	20.00%	50V	
C358	1-126-960-11	ELECT	1uF	20.00%	50V	
C359	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C360	1-163-014-00	CERAMIC CHIP	0.0027uF	10.00%	50V	
C362	1-124-589-11	ELECT	47uF	20%	16V	
C363	1-126-963-11	ELECT	4.7uF	20.00%	50V	
C364	1-126-964-11	ELECT	10uF	20.00%	50V	
C365	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C366	1-126-160-11	ELECT	1uF	20%	50V	
C368	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C369	1-126-163-11	ELECT	4.7uF	20%	50V	(LX4/LX5)
C371	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	
C380	1-137-374-11	MYLAR	0.047uF	5.00%	50V	
C381	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C382	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C383	1-124-589-11	ELECT	47uF	20%	16V	
C405	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(EXCEPT N70/N80/LX8S)
C406	1-124-584-00	ELECT	100uF	20%	10V	(EXCEPT N70/N80/LX8S)
C407	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C421	1-124-589-11	ELECT	47uF	20%	16V	(LX4/LX5/LX6S/LX7S/LX8S)
C422	1-124-589-11	ELECT	47uF	20%	16V	
C423	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C424	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C425	1-124-261-00	ELECT	10uF	20%	50V	(AX10/AX20/N50/N60/N70/N80)
C427	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C500	1-163-098-00	CERAMIC CHIP	16PF	5%	50V	(LX8S(MX))
C500	1-163-231-11	CERAMIC CHIP	15PF	5.00%	50V	(AX10/AX20/N50/N60/N70/N80/LX4/LX5/LX6S/LX7S/LX8S(CS))
C501	1-163-096-00	CERAMIC CHIP	13PF	5%	50V	(AX10/AX20/N50/N60/N70/N80/LX4/LX5/LX6S/LX7S/LX8S(CS))
C501	1-163-233-11	CERAMIC CHIP	18PF	5.00%	50V	(LX8S(MX))
C502	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C503	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C504	1-163-275-11	CERAMIC CHIP	0.001uF	5.00%	50V	
C505	1-162-199-31	CERAMIC	10PF	5%	50V	
C506	1-124-584-00	ELECT	100uF	20%	10V	
C507	1-163-137-00	CERAMIC CHIP	680PF	5%	50V	
C508	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V	
C509	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V	
C510	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C511	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(AX10/AX20/N50/N60U/N60C/N70/N80/LX8S)
C511	1-163-038-91	CERAMIC CHIP	0.1uF		25V	(N60U/LX4/LX5/LX6S/LX7S)
C512	1-124-584-00	ELECT	100uF	20%	10V	
C513	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C514	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C561	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C562	1-104-664-11	ELECT	47uF	20.00%	16V	
C563	1-126-935-11	ELECT	470uF	20.00%	6.3V	
C570	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C571	1-164-346-11	CERAMIC CHIP	1uF		16V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C572	1-126-963-11	ELECT	4.7uF	20.00%	50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C573	1-110-501-11	CERAMIC CHIP	0.33uF	10.00%	16V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C574	1-126-964-11	ELECT	10uF	20.00%	50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C575	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C576	1-126-933-11	ELECT	100uF	20.00%	16V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C577	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
C578	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
⚠C600	1-104-705-11	MYLAR	0.1uF	20.00%	250V	
⚠C601	1-104-705-11	MYLAR	0.1uF	20.00%	250V	(LX4/LX5/LX6S/LX7S/LX8S)
⚠C601	1-113-920-11	CERAMIC	0.0022uF	20.00%	250V	(AX10/AX20/N50/N60/N70/N80)
⚠C601	1-113-920-11	CERAMIC	0.0022uF	99%	125V	(AX10/AX20/N50/N60/N70/N80)
⚠C601	1-115-385-11	CERAMIC	0.0022uF	20.00%	125V	(AX10/AX20/N50/N60/N70/N80)
⚠C602	1-119-886-51	CERAMIC	470PF	10.00%	250V	
⚠C602	1-119-892-51	CERAMIC	470PF	10.00%	250V	
⚠C602	1-119-898-51	CERAMIC	470PF	10.00%	250V	
⚠C603	1-119-911-51	CERAMIC	470PF	10.00%	250V	(AX10/AX20/N50/N60/N70/N80)
⚠C603	1-119-911-51	CERAMIC	470PF	10.00%	125V	(AX10/AX20/N50/N60/N70/N80)
⚠C603	1-113-900-11	CERAMIC	470PF	10.00%	250V	(LX4/LX5/LX6S/LX7S/LX8S)
⚠C603	1-113-900-11	CERAMIC	470PF	10.00%	250V	(LX4/LX5/LX6S/LX7S/LX8S)
⚠C604	1-113-900-11	CERAMIC	470PF	10.00%	250V	(LX4/LX5/LX6S/LX7S/LX8S(CS))
⚠C604	1-119-912-51	CERAMIC	1000PF	20.00%	250V	(AX10/AX20/N50/N60/N70/N80)

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description				Remarks
⚠C604	1-119-912-51	CERAMIC	1000PF	20.00%	125V	(AX10/AX20/N50/N60/N70/N80)
⚠C604	1-119-912-51	CERAMIC	1000PF	10.00%	125V	(AX10/AX20/N50/N60/N70/N80)
⚠C604	1-113-900-11	CERAMIC	470PF	10.00%	250V	(LX4/LX5/LX6S/LX7S/LX8S)
C605	1-119-882-51	ELECT(BLOCK)	120uF	20.00%	200V	(LX4/LX5(MX,PA,PC,VZ)/LX6S/LX7S(MX,PA,PC,VZ)/LX8S(MX))
C605	1-127-932-41	ELECT	150uF	20%	400V	(LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))
C605	1-135-638-41	ELECT	82uF	20%	200V	(AX10/AX20/N50/N60/N70/N80)
C606	1-107-905-11	ELECT	4.7uF	20.00%	50V	(AX10/AX20/N50/N60/N70/N80)
C606	1-107-925-11	ELECT	1uF	20.00%	100V	(LX4/LX5/LX6S/LX7S/LX8S)
C607	1-136-196-11	MYLAR	0.033uF	10.00%	400V	(AX10/AX20/N50/N60/N70/N80)
C607	1-136-203-11	MYLAR	0.01uF	10%	400V	(LX4/LX5/LX6S/LX7S/LX8S)
C608	1-162-558-11	CERAMIC	100PF	10.00%	2KV	(AX10/AX20/N50/N60/N70/N80)
C609	1-107-974-11	CERAMIC	47PF	5.00%	2KV	(LX4/LX5/LX6S/LX7S/LX8S)
C610	1-104-683-11	MYLAR	0.0047uF	5.00%	50V	(LX4/LX5/LX6S/LX7S/LX8S)
C610	1-115-322-91	MYLAR	0.047uF	5.00%	50V	(AX10/AX20/N50/N60/N70/N80)
C611	1-115-322-91	MYLAR	0.047uF	5.00%	50V	(AX10/AX20/N50/N60/N70/N80)
C611	1-136-160-00	MYLAR	0.039uF	5.00%	50V	(LX4/LX5/LX6S/LX7S/LX8S)
C612	1-126-160-11	ELECT	1uF	20%	50V	
C613	1-131-975-21	ELECT	1200uF	20%	10V	
C614	1-131-976-21	ELECT	820uF	20%	25V	
C615	1-126-967-11	ELECT	47uF	20.00%	50V	
C616	1-126-941-11	ELECT	470uF	20.00%	25V	
C617	1-126-935-11	ELECT	470uF	20.00%	16V	
C618	1-126-934-11	ELECT	220uF	20.00%	16V	(LX4/LX5/LX6S/LX7S/LX8S)
C618	1-126-967-11	ELECT	47uF	20.00%	50V	(AX10/AX20/N50/N60/N70/N80)
C619	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C620	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C621	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C622	1-128-131-11	ELECT	22uF	20.00%	50V	
C623	1-124-589-11	ELECT	47uF	20%	16V	
C624	1-124-589-11	ELECT	47uF	20%	16V	
C625	1-124-589-11	ELECT	47uF	20%	16V	
C626	1-124-234-00	ELECT	22uF	20%	16V	
C627	1-128-131-11	ELECT	22uF	20.00%	50V	
C628	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C629	1-124-234-00	ELECT	22uF	20%	16V	
C631	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V	(LX4/LX5/LX6S/LX7S/LX8S)
C638	1-126-925-11	ELECT	470uF	20.00%	10V	(AX10/AX20/N50/N60/N70/N80)
C638	1-128-551-11	ELECT	22uF	20.00%	25V	(LX4/LX5/LX6S/LX7S/LX8S)
C639	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(AX10/AX20/N50/N60/N70/N80)
C701	1-104-664-11	ELECT	47uF	20.00%	16V	
C706	1-126-963-11	ELECT	4.7uF	20.00%	50V	
C707	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C708	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V	(LX4/LX5)
C709	1-126-933-11	ELECT	100uF	20.00%	16V	
C710	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V	(LX4/LX5)
C710	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(EXCEPT LX4/LX5)
C712	1-126-933-11	ELECT	100uF	20.00%	16V	
C733	1-126-960-11	ELECT	1uF	20.00%	50V	(LX4/LX5)
C870	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	(N80)
C871	1-124-589-11	ELECT	47uF	20%	16V	(N80)
C872	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	(N80)
C873	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N80)
C874	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(N80)
C875	1-164-346-11	CERAMIC CHIP	1uF		16V	(N80)
C876	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	(N80)
C878	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(N80)
C879	1-124-589-11	ELECT	47uF	20%	16V	(N80)
C880	1-163-233-11	CERAMIC CHIP	18PF	5.00%	50V	(N80)
C881	1-163-233-11	CERAMIC CHIP	18PF	5.00%	50V	(N80)
C883	1-163-239-11	CERAMIC CHIP	33PF	5.00%	50V	(N80)
C884	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N80)
C885	1-124-257-00	ELECT	2.2uF	20%	50V	(N80)
C886	1-126-160-11	ELECT	1uF	20%	50V	(N80)
C887	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(N80)
C888	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	(N80)
C889	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	(N80)
C980	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(N80)
C981	1-124-589-11	ELECT	47uF	20%	16V	(N80)
C982	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(N80)
C984	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	(N80)
C985	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	(N80)
C986	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(N80)

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Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN101	1-766-978-31	CONNECTOR, FFC/FPC 5P	
CN102	1-779-723-11	CONNECTOR, BOARD TO BOARD 9P	
* CN103	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
CN104	1-506-469-11	PIN, CONNECTOR 4P	
CN161	1-506-468-11	PIN, CONNECTOR 3P	
CN260	1-784-485-11	CONNECTOR, FFC/FPC 6P (LX4/LX5)	
CN260	1-784-490-11	CONNECTOR, FFC/FPC 11P (EXCEPT LX4/LX5)	
* CN270	1-560-892-00	PIN, CONNECTOR 4P	
CN350	1-506-469-11	PIN, CONNECTOR 4P	
CN351	1-506-468-11	PIN, CONNECTOR 3P	
CN402	1-506-469-11	PIN, CONNECTOR 4P (EXCEPT AX10/N50)	
CN403	1-506-469-11	PIN, CONNECTOR 4P (N70/N80/LX8S)	
CN404	1-506-470-11	PIN, CONNECTOR 5P (N70/N80/LX8S)	
CN405	1-506-468-11	PIN, CONNECTOR 3P (EXCEPT N70/N80/LX8S)	
* CN423	1-506-469-11	PIN, CONNECTOR 4P (LX4/LX5)	
* CN423	1-568-954-11	PIN, CONNECTOR 5P (EXCEPT LX4/LX5)	
* CN600	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
		< JACK >	
CNJ980	1-779-013-11	JACK, MINIATURE (S LINK IN)(N80)	
CNJ981	1-784-598-11	JACK (CABLE BOX CONTROL)(N80)	
		< DIODE >	
D103	8-719-048-26	DIODE GL528V1	
D109	8-719-200-82	DIODE 11ES2	
D161	8-719-200-82	DIODE 11ES2	
D162	8-719-200-82	DIODE 11ES2	
D351	8-719-911-19	DIODE 1SS119 (LX4/LX5)	
D352	8-719-911-19	DIODE 1SS119 (LX4/LX5)	
D401	8-719-070-73	DIODE SLR-342VCT32 (LX8S)	
D420	8-719-109-90	DIODE RD5.6ESB3 (AX10/AX20/N50/N60/N70/N80)	
D561	8-719-110-08	DIODE RD8.2ES-B2	
D600	8-719-051-93	DIODE DF06M-6031	
D601	8-719-054-32	DIODE ERA15-06	
D602	8-719-030-25	DIODE EG01C-V0 (LX4/LX5/LX6S/LX7S/LX8S)	
D602	8-719-058-91	DIODE AG01A-V0 (AX10/AX20/N50/N60/N70/N80)	
D603	8-719-200-82	DIODE 11ES2 (AX10/AX20/N50/N60/N70/N80)	
D604	8-719-109-59	DIODE RD2.7ES-B1 (LX4/LX5/LX6S/LX7S/LX8S)	
D604	8-719-109-62	DIODE RD3.0ES-B1 (AX10/AX20/N50/N60/N70/N80)	
D605	8-719-313-17	DIODE AU02A-V0 (LX4/LX5/LX6S/LX7S/LX8S)	
D605	8-719-911-19	DIODE 1SS119 (AX10/AX20/N50/N60/N70/N80)	
D606	8-719-313-17	DIODE AU02A-V0	
D607	8-719-022-97	DIODE D2S4MF	
D608	8-719-073-18	DIODE S3L20UF34	
D609	8-719-313-17	DIODE AU02A-V0	
D610	8-719-160-64	DIODE RD16F-B1	
D611	8-719-911-19	DIODE 1SS119	
D612	8-719-109-85	DIODE RD5.1ES-B2	
D614	8-719-911-19	DIODE 1SS119 (LX4/LX5/LX6S/LX7S/LX8S)	
D615	8-719-109-89	DIODE RD5.6ESB2 (LX4/LX5/LX6S/LX7S/LX8S)	
D616	8-719-110-47	DIODE RD18ESB (LX4/LX5/LX6S/LX7S/LX8S)	
D617	8-719-911-19	DIODE 1SS119 (LX4/LX5/LX6S/LX7S/LX8S)	
D618	8-719-911-19	DIODE 1SS119	

Ref. No.	Part No.	Description	Remarks
D619	8-719-313-17	DIODE AU02A-V0 (AX10/AX20/N50/N60/N70/N80)	
D702	8-719-150-92	DIODE RD33EB3T	
D980	8-719-067-40	DIODE STZ6.8N-T146 (N80)	
D982	8-719-911-19	DIODE 1SS119 (N80)	
D983	8-719-067-40	DIODE STZ6.8N-T146 (N80)	
		< TERMINAL >	
ET600	1-537-770-21	TERMINAL BOARD, GROUND	
ET601	1-537-770-21	TERMINAL BOARD, GROUND	
		< FUSE >	
⚠F600	1-533-296-11	FUSE, GLASS CYLINDRICAL(DIA.5)2A/125V (EXCEPT LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))	
⚠F600	1-532-388-31	FUSE (T2A/250V) (LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))	
		< FERRITE BEAD >	
FB101	1-414-235-22	INDUCTOR CHIP 0UH	
FB601	1-410-858-21	INDUCTOR 0UH	
		< FUSE HOLDER >	
FH600	1-533-223-11	FUSE HOLDER	
FH601	1-533-223-11	FUSE HOLDER	
		< IC >	
IC101	8-759-645-07	IC LB1943N	
IC160	8-759-643-95	IC M37760M8H103GP (AX10/N50)	
IC160	8-759-643-96	IC M37760M8H104GP (AX20/N60/N70)	
IC160	8-759-643-97	IC M37760MCH201GP (N80)	
IC160	8-759-663-43	IC M37760M8H107GP (LX4/LX5/LX6S/LX7S/LX8S)	
IC161	8-759-573-21	IC M24C16-WMN6T (N80)	
IC161	8-759-575-70	IC M24C02-WMN6T (AX10/N50/LX4/LX5/LX6S/LX7S/LX8S)	
IC161	8-759-575-71	IC M24C04-WMN6T (AX20/N60/N70)	
IC162	8-759-248-87	IC MM1256XF-BE	
IC201	8-759-599-15	IC LA71052M-MPB	
IC260	8-759-564-36	IC LA70011	
IC301	8-759-638-55	IC TDA9605H/N2,518 (LX6S/LX7S/LX8S)	
IC301	8-759-638-56	IC TDA9605H/N2,557 (AX10/AX20/N50/N60/N70/N80)	
IC350	8-759-499-30	IC BA7755AF-E2	
IC403	8-749-015-48	IC RPM6940 (AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)	
IC404	8-759-643-83	IC uPD16315GB-3BS	
IC570	8-759-566-07	IC LA7277M-TLM (N70/N80/LX4/LX5/LX6S/LX7S/LX8S)	
IC601	8-759-438-18	IC PQ12RD08	
⚠IC602	8-759-430-24	IC CXD8640Q	
IC870	8-759-164-09	IC LA7218M (N80)	
IC871	8-759-430-84	IC MC68HC05CCVFB-VSX9011 (N80)	
IC980	8-759-356-27	IC NJM2129M (N80)	

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Ref. No.	Part No.	Description	Remarks
		< JACK >	
J561	1-779-011-11	JACK, PIN 6P (LINE 1 IN/OUT)	(N70/N80/LX8S)
J562	1-779-010-11	JACK, PIN 4P (LINE 1 IN/OUT)	(LX4/LX5)
J562	1-779-011-11	JACK, PIN 6P (LINE 1 IN/OUT)	(AX10/AX20/N50/N60/LX6S/LX7S)
		< JUMPER RESISTOR >	
JR001	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR002	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR003	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR004	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR005	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR006	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT LX4/LX5)
JR007	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT LX4/LX5)
JR008	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR009	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR010	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR011	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR012	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR013	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR014	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR015	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR017	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT LX4/LX5)
JR018	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR019	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR020	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR021	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR022	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR023	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR024	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR025	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR026	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR027	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR028	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR029	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR030	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR031	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR032	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR033	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR034	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR035	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT LX4/LX5)
JR036	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR037	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR038	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR039	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR040	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR041	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR042	1-216-296-00	METAL CHIP 0 5% 1/8W	(N80)
JR043	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR044	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR045	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR046	1-216-295-00	METAL CHIP 0 5% 1/10W	

Ref. No.	Part No.	Description	Remarks
JR047	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR048	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR049	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR050	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR051	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR052	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR053	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR055	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR056	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR057	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR058	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR059	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR060	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR061	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR062	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR063	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR064	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR065	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR066	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR067	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR068	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR069	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR071	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT LX4/LX5)
JR072	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR073	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR074	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR075	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR076	1-216-295-00	METAL CHIP 0 5% 1/10W	(N80)
JR078	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR079	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR080	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR081	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR082	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR083	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR084	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR085	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR086	1-216-295-00	METAL CHIP 0 5% 1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
JR087	1-216-296-00	METAL CHIP 0 5% 1/8W	(N80)
		< JUMPER RESISTOR >	
JS303	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS325	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5)
JS326	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5)
JS327	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5)
JS363	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT LX4/LX5)
JS364	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS452	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX8S)
JS501	1-216-295-00	METAL CHIP 0 5% 1/10W	(N70/N80/LX8S)
JS502	1-216-296-00	METAL CHIP 0 5% 1/8W	(N70/N80/LX8S)
JS503	1-216-296-00	METAL CHIP 0 5% 1/8W	(N70/N80/LX8S)

Ref. No.	Part No.	Description	Remarks
JS504	1-216-296-00	METAL CHIP 0 5% 1/8W	(N70/N80/LX8S)
JS505	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT N70/N80/LX8S)
JS506	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT N70/N80/LX8S)
JS507	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT N70/N80/LX8S)
JS508	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT N70/N80/LX8S)
JS509	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT N70/N80/LX8S)
JS510	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT N70/N80/LX8S)
JS511	1-216-296-00	METAL CHIP 0 5% 1/8W	(N70/N80/LX8S)
JS512	1-216-296-00	METAL CHIP 0 5% 1/8W	(EXCEPT N70/N80/LX8S)
JS612	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS614	1-216-295-00	METAL CHIP 0 5% 1/10W	(AX10/AX20/N50/N60/N70/N80)
JS616	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS618	1-216-295-00	METAL CHIP 0 5% 1/10W	(AX10/AX20/N50/N60/N70/N80)
JS619	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS620	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS621	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS622	1-216-295-00	METAL CHIP 0 5% 1/10W	(AX10/AX20/N50/N60/N70/N80)
JS623	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS624	1-216-295-00	METAL CHIP 0 5% 1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
JS982	1-216-295-00	METAL CHIP 0 5% 1/10W	(N80)
		< COIL >	
L101	1-414-930-21	INDUCTOR 2.2uH	
L161	1-414-936-21	INDUCTOR 22uH	
L162	1-414-936-21	INDUCTOR 22uH	
L163	1-414-936-21	INDUCTOR 22uH	
L201	1-414-946-21	INDUCTOR 39uH	
L202	1-414-940-21	INDUCTOR 100uH	
L203	1-414-934-21	INDUCTOR 10uH	
L204	1-414-940-21	INDUCTOR 100uH	
L205	1-414-940-21	INDUCTOR 100uH	
L206	1-414-940-21	INDUCTOR 100uH	
L207	1-414-942-21	INDUCTOR 220uH	(EXCEPT LX4/LX5)
L270	1-414-940-21	INDUCTOR 100uH	
L301	1-414-940-21	INDUCTOR 100uH	(EXCEPT LX4/LX5)
L380	1-414-940-21	INDUCTOR 100uH	
L420	1-414-936-21	INDUCTOR 22uH	
L500	1-414-930-21	INDUCTOR 2.2uH	
L501	1-414-940-21	INDUCTOR 100uH	
L561	1-414-940-21	INDUCTOR 100uH	
L570	1-414-940-21	INDUCTOR 100uH	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
L601	1-403-588-11	INDUCTOR 22uH	
L601	1-412-529-11	INDUCTOR 22uH	
L602	1-403-588-11	INDUCTOR 22uH	
L602	1-412-529-11	INDUCTOR 22uH	
L603	1-410-509-11	INDUCTOR 10uH	(AX10/AX20/N50/N60/N70/N80)
L603	1-410-526-11	INDUCTOR 10uH	(LX4/LX5/LX6S/LX7S/LX8S)
L604	1-410-519-11	INDUCTOR 68uH	
L605	1-414-142-11	INDUCTOR 1uH	(AX10/AX20/N50/N60/N70/N80)
L606	1-414-142-11	INDUCTOR 1uH	(AX10/AX20/N50/N60/N70/N80)
L703	1-414-930-21	INDUCTOR 2.2uH	
L704	1-414-936-21	INDUCTOR 22uH	
L705	1-414-930-21	INDUCTOR 2.2uH	
L870	1-414-940-21	INDUCTOR 100uH	(N80)
L871	1-414-934-21	INDUCTOR 10uH	(N80)
		< LINE FILTER >	
⚠LF600	1-416-929-11	FILTER, LINE	
		< COATING PIN >	
LP001	4-352-844-01	PIN, LEAD, COATING	(LX4/LX5/LX6S/LX7S)
		< FLUORESCENT INDICATOR >	
ND420	1-517-925-11	TUBE, FLUORESCENT INDICATOR	
		< PHOTO INTERRUPTER >	
PH101	8-749-015-86	PHOTO GP3S120S	
PH102	8-749-015-86	PHOTO GP3S120S	
⚠PH600	8-749-010-64	PHOTO PC123F2	(LX4/LX5/LX6S/LX7S/LX8S)
⚠PH600	8-749-014-24	COUPLER, PHOTO ON3131-S(LF)	(AX10/AX20/N50/N60/N70/N80)
		< IC LINK >	
⚠PS101	1-532-727-11	LINK, IC 0.25A	
⚠PS600	1-532-841-21	LINK, IC 1.6A	
		< TRANSISTOR >	
Q101	8-729-043-84	TRANSISTOR PT380F3	
Q102	8-729-043-84	TRANSISTOR PT380F3	
Q103	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q201	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q202	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q203	8-729-216-21	TRANSISTOR 2SA1162-Y	
Q301	8-729-216-21	TRANSISTOR 2SA1162-Y	(EXCEPT LX4/LX5)
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG	(EXCEPT LX4/LX5)
Q303	8-729-230-49	TRANSISTOR 2SC2712-YG	(EXCEPT LX4/LX5)
Q350	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q351	8-729-230-49	TRANSISTOR 2SC2712-YG	(LX4/LX5)
Q380	8-729-821-15	TRANSISTOR 2SD1620	
Q500	8-729-010-05	TRANSISTOR MSB709-RT1	
Q501	8-729-010-29	TRANSISTOR MSD601-RST1	
Q502	8-729-216-21	TRANSISTOR 2SA1162-Y	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description			Remarks
Q561	8-729-010-05	TRANSISTOR	MSB709-RT1		
Q601	8-729-904-98	TRANSISTOR	2SC4054P		(AX10/AX20/N50/N60/N70/N80)
Q601	8-729-043-47	TRANSISTOR	2SK2671		(LX4/LX5/LX6S/LX7S/LX8S)
Q602	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q		
Q603	8-729-119-78	TRANSISTOR	2SC403SP-51		
Q604	8-729-010-29	TRANSISTOR	MSD601-RST1		
Q605	8-729-039-82	TRANSISTOR	2SB1326-QR-TV2		
Q605	8-729-047-92	TRANSISTOR	2SB1398-Q(TA).S0		
Q606	8-729-230-49	TRANSISTOR	2SC2712-YG		(LX4/LX5/LX6S/LX7S/LX8S)
Q607	8-729-019-01	TRANSISTOR	2SD2394-EF		
Q870	8-729-010-05	TRANSISTOR	MSB709-RT1 (N80)		
Q871	8-729-010-05	TRANSISTOR	MSB709-RT1 (N80)		
Q872	8-729-010-29	TRANSISTOR	MSD601-RST1 (N80)		
Q873	8-729-010-29	TRANSISTOR	MSD601-RST1 (N80)		
Q874	8-729-424-08	TRANSISTOR	UN2111 (N80)		
Q875	8-729-010-29	TRANSISTOR	MSD601-RST1 (N80)		
		< RESISTOR >			
R101	1-249-413-11	CARBON	470	5%	1/4W F
R102	1-216-077-91	RES-CHIP	15K	5%	1/10W
R103	1-216-077-91	RES-CHIP	15K	5%	1/10W
R104	1-216-081-00	METAL CHIP	22K	5%	1/10W
R105	1-247-863-91	CARBON	22K	5%	1/4W
R106	1-249-400-11	CARBON	39	5%	1/4W F
R107	1-249-400-11	CARBON	39	5%	1/4W F
R109	1-216-089-00	METAL CHIP	47K	5%	1/10W
R110	1-216-089-00	METAL CHIP	47K	5%	1/10W
R111	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R112	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (AX10/AX20/N50/N60/N70/N80/LX8S)
R112	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (N60U/LX4/LX5/LX6S/LX7S)
R115	1-216-089-00	METAL CHIP	47K	5%	1/10W
R116	1-216-089-00	METAL CHIP	47K	5%	1/10W
R117	1-216-041-00	METAL CHIP	470	5%	1/10W
R118	1-216-089-00	METAL CHIP	47K	5%	1/10W
R119	1-216-077-91	RES-CHIP	15K	5%	1/10W
R120	1-249-417-11	CARBON	1K	5%	1/4W F
R121	1-216-041-00	METAL CHIP	470	5%	1/10W
R142	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R143	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (AX10/AX20/N50/N60/N70/N80/LX8S)
R143	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (N60U/LX4/LX5/LX6S/LX7S)
R159	1-216-097-91	RES-CHIP	100K	5%	1/10W (EXCEPT LX4/LX5)
R160	1-216-049-00	METAL CHIP	1K	5%	1/10W (EXCEPT LX4/LX5)
R161	1-216-073-00	METAL CHIP	10K	5%	1/10W (N60/N70/LX6S/LX7S/LX8S)
R162	1-249-419-11	CARBON	1.5K	5%	1/4W F (LX6S/LX7S)
R162	1-249-426-11	CARBON	5.6K	5%	1/4W (N70)
R162	1-247-843-11	CARBON	3.3K	5%	1/4W (AX20/N60/LX8S)
R163	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R164	1-216-089-00	METAL CHIP	47K	5%	1/10W
R165	1-216-089-00	METAL CHIP	47K	5%	1/10W
R166	1-216-073-00	METAL CHIP	10K	5%	1/10W
R167	1-249-431-11	CARBON	15K	5%	1/4W
R168	1-216-073-00	METAL CHIP	10K	5%	1/10W
R169	1-216-073-00	METAL CHIP	10K	5%	1/10W
R170	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R171	1-216-089-00	METAL CHIP	47K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-039-00	METAL CHIP	390	5%	1/10W
R175	1-249-413-11	CARBON	470	5%	1/4W F
R176	1-249-413-11	CARBON	470	5%	1/4W F
R177	1-249-413-11	CARBON	470	5%	1/4W F
R178	1-216-105-91	RES-CHIP	220K	5%	1/10W
R179	1-216-113-00	METAL CHIP	470K	5%	1/10W
R180	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R182	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R183	1-216-295-00	METAL CHIP	0	5%	1/10W
R184	1-216-295-00	METAL CHIP	0	5%	1/10W (N80)
R185	1-216-295-00	METAL CHIP	0	5%	1/10W
R187	1-216-295-00	METAL CHIP	0	5%	1/10W
R188	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R189	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R191	1-249-417-11	CARBON	1K	5%	1/4W F
R192	1-249-417-11	CARBON	1K	5%	1/4W F
R193	1-216-295-00	METAL CHIP	0	5%	1/10W
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R201	1-216-037-00	METAL CHIP	330	5%	1/10W
R202	1-216-047-91	RES-CHIP	820	5%	1/10W
R203	1-216-037-00	METAL CHIP	330	5%	1/10W
R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (AX10/AX20/N50/N60)
R204	1-216-071-00	METAL CHIP	8.2K	5%	1/10W (N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R205	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R208	1-216-295-00	METAL CHIP	0	5%	1/10W
R209	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R210	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R211	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (AX10/AX20/N50/N60/N70/N80/LX8S)
R211	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (N60U/LX4/LX5/LX6S/LX7S)
R212	1-216-043-91	RES-CHIP	560	5%	1/10W
R213	1-216-049-00	METAL CHIP	1K	5%	1/10W
R214	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R215	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R216	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R219	1-216-025-91	RES-CHIP	100	5%	1/10W
R220	1-216-295-00	METAL CHIP	0	5%	1/10W
R221	1-216-295-00	METAL CHIP	0	5%	1/10W
R223	1-216-045-00	METAL CHIP	680	5%	1/10W (EXCEPT LX4/LX5)
R224	1-216-089-00	METAL CHIP	47K	5%	1/10W
R231	1-216-089-00	METAL CHIP	47K	5%	1/10W
R267	1-216-295-00	METAL CHIP	0	5%	1/10W
R270	1-216-041-00	METAL CHIP	470	5%	1/10W
R271	1-216-041-00	METAL CHIP	470	5%	1/10W
R272	1-208-788-11	METAL CHIP	1.8K	0.5%	1/10W
R274	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R276	1-216-069-00	METAL CHIP	6.8K	5%	1/10W

Ref. No.	Part No.	Description				Remarks
R277	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R278	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R279	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W	(EXCEPT LX4/LX5)
R302	1-216-079-00	METAL CHIP	18K	5%	1/10W	(EXCEPT LX4/LX5)
R304	1-216-049-00	METAL CHIP	1K	5%	1/10W	(EXCEPT LX4/LX5)
R305	1-216-049-00	METAL CHIP	1K	5%	1/10W	(EXCEPT LX4/LX5)
R306	1-216-083-00	METAL CHIP	27K	5%	1/10W	(EXCEPT LX4/LX5)
R307	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	(EXCEPT LX4/LX5)
R308	1-208-820-11	METAL CHIP	39K	0.5%	1/10W	(EXCEPT LX4/LX5)
R309	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(AX10/AX20/N50/N60/N70/N80/LX8S)
R309	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(N60U/LX6S/LX7S)
R310	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(AX10/AX20/N50/N60/N70/N80/LX8S)
R310	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(N60U/LX6S/LX7S)
R311	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	(EXCEPT LX4/LX5)
R312	1-216-083-00	METAL CHIP	27K	5%	1/10W	(EXCEPT LX4/LX5)
R313	1-216-133-00	METAL CHIP	3.3M	5%	1/10W	(EXCEPT LX4/LX5)
R314	1-216-073-00	METAL CHIP	10K	5%	1/10W	(EXCEPT LX4/LX5)
R315	1-216-033-00	METAL CHIP	220	5%	1/10W	(EXCEPT LX4/LX5)
R316	1-216-033-00	METAL CHIP	220	5%	1/10W	(EXCEPT LX4/LX5)
R317	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(EXCEPT LX4/LX5)
R318	1-216-049-00	METAL CHIP	1K	5%	1/10W	(EXCEPT LX4/LX5)
R319	1-216-049-00	METAL CHIP	1K	5%	1/10W	(EXCEPT LX4/LX5)
R322	1-216-295-00	METAL CHIP	0	5%	1/10W	(EXCEPT LX4/LX5)
R327	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(AX10/AX20/N50/N60/N70/N80/LX8S)
R327	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(N60U/LX6S/LX7S)
R328	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(AX10/AX20/N50/N60/N70/N80/LX8S)
R328	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(N60U/LX6S/LX7S)
R329	1-216-041-00	METAL CHIP	470	5%	1/10W	(EXCEPT LX4/LX5)
R350	1-216-093-91	RES-CHIP	68K	5%	1/10W	
R351	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R352	1-249-439-11	CARBON	68K	5%	1/4W	(LX4/LX5)
R353	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	(LX4/LX5)
R354	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	
R355	1-216-093-91	RES-CHIP	68K	5%	1/10W	(LX4/LX5)
R356	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	(LX4/LX5)
R357	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R358	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R359	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(AX10/AX20/N50/N60/N70/N80/LX8S)
R359	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(N60U/LX4/LX5/LX6S/LX7S)
R362	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R363	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R364	1-216-035-00	METAL CHIP	270	5%	1/10W	
R365	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R366	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R367	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R368	1-216-295-00	METAL CHIP	0	5%	1/10W	
R369	1-216-047-91	RES-CHIP	820	5%	1/10W	
R370	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R371	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R372	1-216-043-91	RES-CHIP	560	5%	1/10W	
R373	1-216-049-00	METAL CHIP	1K	5%	1/10W	(LX4/LX5)
R380	1-216-017-91	RES-CHIP	47	5%	1/10W	
R381	1-216-063-91	RES-CHIP	3.9K	5%	1/10W	
R382	1-217-671-11	METAL CHIP	1	5%	1/10W	
R383	1-216-031-00	METAL CHIP	180	5%	1/10W	
R401	1-216-025-91	RES-CHIP	100	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R402	1-249-437-11	CARBON	47K	5%	1/4W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R407	1-216-013-00	METAL CHIP	33	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R409	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R410	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R411	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R412	1-216-075-00	METAL CHIP	12K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R413	1-216-077-91	RES-CHIP	15K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R414	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(LX4/LX5/LX6S/LX7S)
R415	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R416	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R417	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R418	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	(AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S)
R419	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	(N70/N80/LX8S)
R420	1-216-075-00	METAL CHIP	12K	5%	1/10W	(N70/N80/LX8S)
R421	1-216-037-00	METAL CHIP	330	5%	1/10W	(LX8S)
R422	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R423	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R424	1-216-049-00	METAL CHIP	1K	5%	1/10W	

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Ref. No.	Part No.	Description				Remarks
R425	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R427	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	(AX10/AX20/N50/N60U/N70/N80)
R428	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	(N70/N80/LX8S)
R429	1-216-077-91	RES-CHIP	15K	5%	1/10W	(N70/N80/LX8S)
R430	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(N70/N80/LX8S)
R431	1-216-093-91	RES-CHIP	68K	5%	1/10W	(N70/N80/LX8S)
R432	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(N70/N80/LX8S)
R440	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R500	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R502	1-216-295-00	METAL CHIP	0	5%	1/10W	
R503	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R504	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R505	1-216-045-00	METAL CHIP	680	5%	1/10W	
R506	1-216-033-00	METAL CHIP	220	5%	1/10W	
R507	1-216-041-00	METAL CHIP	470	5%	1/10W	
R508	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R509	1-216-121-91	RES-CHIP	1M	5%	1/10W	
R512	1-216-295-00	METAL CHIP	0	5%	1/10W	
R513	1-249-413-11	CARBON	470	5%	1/4W	F
R561	1-216-037-00	METAL CHIP	330	5%	1/10W	
R562	1-249-407-11	CARBON	150	5%	1/4W	F
R563	1-249-408-11	CARBON	180	5%	1/4W	F
R564	1-216-021-00	METAL CHIP	68	5%	1/10W	
R565	1-216-022-00	METAL CHIP	75	5%	1/10W	
R570	1-216-675-91	METAL CHIP	10K	0.5%	1/10W	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R571	1-216-041-00	METAL CHIP	470	5%	1/10W	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R572	1-216-041-00	METAL CHIP	470	5%	1/10W	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R573	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W	(N70/N80/LX4/LX5/LX6S/LX7S/LX8S)
R575	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(N70/N80/LX8S)
R575	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	(LX4/LX5/LX6S/LX7S)
⚠R600	1-219-779-51	CARBON	6.8M	10%	1/2W	(AX10/AX20/N50/N60U/N70/N80)
R601	1-249-441-11	CARBON	100K	5%	1/4W	
R602	1-249-441-11	CARBON	100K	5%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R602	1-247-883-00	CARBON	150K	5%	1/4W	(LX4/LX5/LX6S/LX7S/LX8S)
R603	1-249-429-11	CARBON	10K	5%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R603	1-249-439-11	CARBON	68K	5%	1/4W	(LX4/LX5/LX6S/LX7S/LX8S)
R604	1-215-889-00	METAL OXIDE	330	5%	2W	(LX4/LX5/LX6S/LX7S/LX8S)
R604	1-216-451-11	METAL OXIDE	120	5%	2W	(AX10/AX20/N50/N60U/N70/N80)
R605	1-215-416-00	METAL	620	1%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R605	1-249-411-11	CARBON	330	5%	1/4W	(LX4/LX5/LX6S/LX7S/LX8S)
R606	1-249-402-11	CARBON	56	5%	1/4W	F (AX10/AX20/N50/N60U/N70/N80)
R606	1-249-415-11	CARBON	680	5%	1/4W	F (LX4/LX5/LX6S/LX7S/LX8S)
R607	1-215-927-41	METAL OXIDE	47K	5%	3W	
R608	1-249-401-11	CARBON	47	5%	1/4W	F
R609	1-249-406-11	CARBON	120	5%	1/4W	F
R610	1-208-789-11	METAL CHIP	2K	0.5%	1/10W	
R611	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W	
⚠R612	1-219-786-81	FUSIBLE	22	5%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R613	1-260-091-11	CARBON	220	5%	1/2W	
⚠R614	1-219-153-11	FUSIBLE	10	5%	1/4W	(LX4/LX5/LX6S/LX7S/LX8S)
⚠R614	1-211-777-11	FUSIBLE	15	5%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R615	1-249-417-11	CARBON	1K	5%	1/4W	F
R616	1-247-815-91	CARBON	220	5%	1/4W	
R617	1-249-417-11	CARBON	1K	5%	1/4W	F
R618	1-260-091-11	CARBON	220	5%	1/2W	
R623	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R624	1-216-430-11	METAL OXIDE	390	5%	1W	
R625	1-249-429-11	CARBON	10K	5%	1/4W	
R626	1-260-364-11	CARBON	1M	5%	1/2W	(LX4/LX5/LX6S/LX7S/LX8S)
R627	1-249-441-11	CARBON	100K	5%	1/4W	(LX4/LX5/LX6S/LX7S/LX8S)
R628	1-216-093-91	RES-CHIP	68K	5%	1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
R629	1-216-341-11	METAL OXIDE	0.22	5%	1W	(LX4/LX5/LX6S/LX7S/LX8S)
R630	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R633	1-216-047-91	RES-CHIP	820	5%	1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
R633	1-216-295-00	METAL CHIP	0	5%	1/10W	(AX10/AX20/N50/N60U/N70/N80)
R634	1-216-073-00	METAL CHIP	10K	5%	1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
R635	1-216-017-91	RES-CHIP	47	5%	1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
R636	1-216-047-91	RES-CHIP	820	5%	1/10W	(LX4/LX5/LX6S/LX7S/LX8S)
R637	1-247-815-91	CARBON	220	5%	1/4W	
⚠R641	1-219-123-11	FUSIBLE	0.47	5%	1/4W	(AX10/AX20/N50/N60U/N70/N80)
R642	1-215-907-11	METAL OXIDE	22	5%	3W	(LX4/LX5/LX6S/LX7S/LX8S)
R642	1-216-374-41	METAL OXIDE	2.7	5%	2W	(AX10/AX20/N50/N60U/N70/N80)
R643	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R645	1-260-073-11	CARBON	5.6	5%	1/2W	(LX4/LX5/LX6S/LX7S/LX8S)
R646	1-260-073-11	CARBON	5.6	5%	1/2W	(LX4/LX5/LX6S/LX7S/LX8S)
R647	1-215-857-11	METAL OXIDE	10	5%	1W	(LX4/LX5/LX6S/LX7S/LX8S)
R701	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R702	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R703	1-216-039-00	METAL CHIP	390	5%	1/10W	

Note :
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Replace only with part number specified.

Note :
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Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R704	1-216-043-91	RES-CHIP	560	5%	1/10W
⚠R705	1-240-307-81	FUSIBLE	560	5%	1/4W
R706	1-216-113-00	METAL CHIP	470K	5%	1/10W
R707	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (AX10/AX20/N50/N60U/N60C/N70/N80/LX8S)
R707	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (N60U/LX6S/LX7S)
R709	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R710	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R711	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R713	1-216-295-00	METAL CHIP	0	5%	1/10W (LX4/LX5)
R731	1-216-049-00	METAL CHIP	1K	5%	1/10W (EXCEPT LX4/LX5)
R732	1-216-049-00	METAL CHIP	1K	5%	1/10W (EXCEPT LX4/LX5)
R733	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (AX10/AX20/N50/N60U/N60C/N70/N80/LX8S)
R733	1-216-065-91	RES-CHIP	4.7K	5%	1/10W (N60U/LX6S/LX7S)
R734	1-216-049-00	METAL CHIP	1K	5%	1/10W (EXCEPT LX4/LX5)
R735	1-216-049-00	METAL CHIP	1K	5%	1/10W (EXCEPT LX4/LX5)
R736	1-216-295-00	METAL CHIP	0	5%	1/10W (EXCEPT LX4/LX5)
R737	1-216-081-00	METAL CHIP	22K	5%	1/10W (EXCEPT LX4/LX5)
R738	1-216-081-00	METAL CHIP	22K	5%	1/10W (EXCEPT LX4/LX5)
R871	1-216-073-00	METAL CHIP	10K	5%	1/10W (N80)
R872	1-216-025-91	RES-CHIP	100	5%	1/10W (N80)
R873	1-216-025-91	RES-CHIP	100	5%	1/10W (N80)
R874	1-216-025-91	RES-CHIP	100	5%	1/10W (N80)
R875	1-247-807-31	CARBON	100	5%	1/4W (N80)
R876	1-216-081-00	METAL CHIP	22K	5%	1/10W (N80)
R877	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (N80)
R878	1-216-073-00	METAL CHIP	10K	5%	1/10W (N80)
R879	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R880	1-216-073-00	METAL CHIP	10K	5%	1/10W (N80)
R881	1-216-043-91	RES-CHIP	560	5%	1/10W (N80)
R882	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R883	1-216-053-00	METAL CHIP	1.5K	5%	1/10W (N80)
R884	1-216-047-91	RES-CHIP	820	5%	1/10W (N80)
R885	1-247-807-31	CARBON	100	5%	1/4W (N80)
R886	1-216-073-00	METAL CHIP	10K	5%	1/10W (N80)
R887	1-216-081-00	METAL CHIP	22K	5%	1/10W (N80)

Ref. No.	Part No.	Description			Remarks
R888	1-216-081-00	METAL CHIP	22K	5%	1/10W (N80)
R889	1-216-025-91	RES-CHIP	100	5%	1/10W (N80)
R890	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R891	1-216-073-00	METAL CHIP	10K	5%	1/10W (N80)
R892	1-216-063-91	RES-CHIP	3.9K	5%	1/10W (N80)
R893	1-216-101-00	METAL CHIP	150K	5%	1/10W (N80)
R894	1-216-043-91	RES-CHIP	560	5%	1/10W (N80)
R895	1-216-043-91	RES-CHIP	560	5%	1/10W (N80)
R896	1-216-033-00	METAL CHIP	220	5%	1/10W (N80)
R980	1-216-049-00	METAL CHIP	1K	5%	1/10W (N80)
R981	1-216-295-00	METAL CHIP	0	5%	1/10W (N80)
		< SWITCH >			
S101	1-762-108-11	SWITCH, PUSH (REC PROOF)(1 KEY)			
S102	1-771-155-11	SWITCH, ROTARY (MODE)			
S403	1-762-196-21	SWITCH, TACT (REALITY REGENERATOR)			(LX4/LX5/LX6S/LX7S)
S404	1-762-196-21	SWITCH, TACT (CHANNEL/TRACKING+)			(EXCEPT N70/N80/LX8S)
S405	1-762-196-21	SWITCH, TACT (CHANNEL/TRACKING–)			(EXCEPT N70/N80/LX8S)
S406	1-762-196-21	SWITCH, TACT (EASY SET UP)			(EXCEPT N70/N80/LX8S)
S408	1-762-196-21	SWITCH, TACT (REW)(EXCEPT N70/N80/LX8S)			
S409	1-762-196-21	SWITCH, TACT (PAUSE)			(EXCEPT N70/N80/LX8S)
S410	1-762-196-21	SWITCH, TACT (PLAY)(EXCEPT N70/N80/LX8S)			
S411	1-762-196-21	SWITCH, TACT (STOP)(EXCEPT N70/N80/LX8S)			
S412	1-762-196-21	SWITCH, TACT (REC)(EXCEPT N70/N80/LX8S)			
S413	1-762-196-21	SWITCH, TACT (FF)(EXCEPT N70/N80/LX8S)			
S421	1-771-574-21	SWITCH, TACTILE (REALITY REGENERATOR)			(N70/N80/LX8S)
S422	1-771-574-21	SWITCH, TACTILE (EASY SET UP)			(N70/N80/LX8S)
S423	1-771-574-21	SWITCH, TACTILE (CHANNEL/TRACKING–)			(N70/N80/LX8S)
S424	1-771-574-21	SWITCH, TACTILE (CHANNEL/TRACKING+)			(N70/N80/LX8S)
S425	1-771-574-21	SWITCH, TACTILE (INPUT SELECT)			(N70/N80/LX8S)
S426	1-771-574-21	SWITCH, TACTILE (SYNC)(LX8S)			
S701	1-571-588-31	SWITCH, SLIDE (RF UNIT (CH3 ↔ CH4))			
		< TRANSFORMER >			
T380	1-433-479-11	TRANSFORMER, BIAS OSCILLATION			
⚠T600	1-431-694-11	TRANSFORMER, CONVERTER (RCC)			(LX4/LX5/LX6S/LX7S/LX8S)
⚠T600	1-433-568-11	TRANSFORMER, CONVERTER (RCC)			(AX10/AX20/N50/N60/N70/N80)
⚠T600	1-433-568-31	TRANSFORMER, CONVERTER (RCC) (N60U)			

Note :	Note :
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Ref. No.	Part No.	Description	Remarks
		< TUNER >	
TU700	1-693-442-12	TUNER, IF (BTF-3MA412) (LX4/LX5)	
TU701	8-598-473-20	TUNER, FSS BTF-MA431 (AX10/AX20/N50/N60/N70/N80/LX8S)	
TU701	8-598-473-30	TUNER, FSS BTF-MA431 (LX6S/LX7S)	
		< VARISTOR >	
⚠VDR600	1-801-267-31	VARISTOR TNR10V431K660 (LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))	
⚠VDR600	1-801-445-31	VARISTOR TNR10V241K660 (EXCEPT LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))	
		< VIBRATOR >	
X160	1-767-857-11	VIBRATOR, CRYSTAL (14.31818 MHz)	
X161	1-579-463-11	VIBRATOR, CRYSTAL (32.768 kHz)	
X201	1-577-380-11	VIBRATOR, CRYSTAL (3.57954 MHz)	
X870	1-577-165-11	VIBLATOR, CERAMIC (500 kHz)(N80)	
X871	1-577-133-21	VIBRATOR, CRYSTAL (8 MHz)(N80)	

Ref. No.	Part No.	Description	Remarks
	A-6794-716-A	MF-319 BOARD, COMPLETE (N70/N80/LX8S) ************************	
		< CAPACITOR >	
C462	1-124-584-00	ELECT 100uF 20% 10V	
		< CONNECTOR >	
* CN461	1-568-942-11	PIN, CONNECTOR 4P	
		< IC >	
IC461	8-749-011-05	IC GP1U28X	
		< RESISTOR >	
R461	1-216-013-00	METAL CHIP 33 5% 1/10W	
R463	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		< SWITCH >	
S461	1-762-196-21	SWITCH, TACT	

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS **************	
⚠9	1-777-852-12	CORD, POWER (LX4/LX5(MX,PA,PC,VZ)/LX6S/LX7S(MX,PA,PC,VZ))	
⚠9	1-777-852-33	CORD, POWER (LX8S(MX))	
⚠9	1-777-854-21	CORD, POWER (LX5(CL,CS)/LX7S(CL,CS))	
⚠9	1-782-000-33	CORD, POWER (LX8S(CS))	
⚠9	1-790-293-21	CORD, POWER (AX10/AX20/N50C/N60)	
⚠9	1-790-293-31	CORD, POWER (N70/N80)	
55	1-791-857-11	CABLE, FLAT (FFM-34)	

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES ***********	
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (LX5(CL,CS)/LX7S(CL,CS)/LX8S(CS))	
	1-575-334-11	CORD (WITH CONNECTOR) (N70/LX6S/LX7S/LX8S)	
	1-575-334-11	CORD, CONNECTION (N70/LX6S/LX7S/LX8S)	
	1-696-592-11	CORD, CONNECTION (NTSC) (AX10/N50C/N60C/N60U/N70/N80/LX4/LX5/LX6S/LX7S/LX8S)	
	1-776-258-11	CORD, AVC CONNECTION (N80)	
	1-790-938-11	CORD, CONNECTION (N80)	
	3-868-107-11	MANUAL, INSTRUCTION (ENGLISH) (AX10/AX20/N50/N60)	
	3-868-107-21	MANUAL, INSTRUCTION (FRENCH/CHINESE) (N50C/N60C)	
	3-868-108-12	MANUAL, INSTRUCTION (SPANISH) (LX4/LX5/LX6S/LX7S)	
	3-868-116-12	MANUAL, INSTRUCTION (ENGLISH)(N70/N80)	
	3-868-116-22	MANUAL, INSTRUCTION (FRENCH/CHINESE) (N70C/N80C)	
	3-868-172-11	MANUAL, INSTRUCTION (SPANISH)(LX8S)	
	1-418-694-11	COMMANDER, STANDARD(RMT-V266A) (AX10/N50)	
	1-418-695-11	COMMANDER, STANDARD(RMT-V266B) (AX20/N60)	
	1-418-696-11	COMMANDER, STANDARD (RMT-V292) (N80)	
	1-418-696-21	COMMANDER, STANDARD(RMT-V292A) (N70)	
	1-418-697-11	COMMANDER, STANDARD (RMT-V293) (LX4/LX5)	
	1-418-698-11	COMMANDER, STANDARD (RMT-V294) (LX6S/LX7S/LX8S)	
	3-709-128-01	COVER, BATTERY(292/292A) (N70/N80)	
	3-709-432-01	COVER, REMOTE CONTROL BATTERY (266A/266B/293/294) (AX10/AX20/N50/N60/LX4/LX5/LX6S/LX7S/LX8S)	

Ref. No.	Part No.	Description	Remarks
		************* HARDWARE LIST *************	
#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 (AX10/N50C/N60C/N60U/N70/N80/LX4/LX5/LX6S/LX7S/LX8S)	
#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3 (AX10/N50C/N60C/N60U/N70/N80/LX4/LX5/LX6S/LX7S/LX8S)	
#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 TT(B) (N70/N80/LX8S)	
#701	7-685-646-79	SCREW +BVTP 3X8 TYPE2 (AX10)	
#702	7-682-147-01	SCREW +P 3X6 (AX10/N50C/N60C/N60U/N70/N80/LX4/LX5/LX6S/LX7S/LX8S)	
#703	7-685-133-19	SCREW (DIA. 2.6) (IT3B) (AX10)	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Sony Corporation
Home Video Division Company

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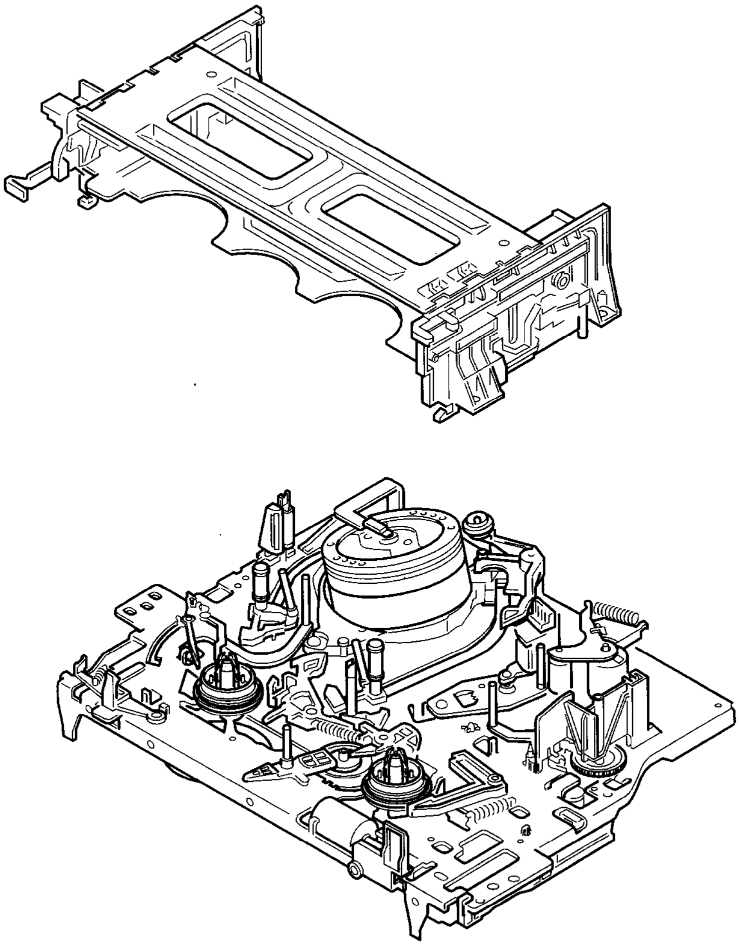
VHS MECHANICAL ADJUSTMENT MANUAL VI

S MECHANISM

VHS

Please use with the service manual.



VHS TAPE TRANSPORT MECHANISM DECK

MICROFILM

SONY®

ADJUSTMENTS REQUIRED THE FOLLOWING PARTS REPLACEMENT

PARTS	ADJUSTMENTS	4-1-1	4-1-2	4-1-3	4-1-4	4-1-5	4-1-6	4-1-7	4-1-8
		TENSION REGULATOR POSITION/TENSION ADJUSTMENT	CHECKING THE TENSION AND TORQUE	X-VALUE ADJUSTMENT	HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6	ACE HEAD HEIGHT AND AZIMUTH ADJUSTMENT	X-VALUE FINE ADJUSTMENT	HEIGHT ADJUSTMENT OF GUIDE ROLLER NO. 8	CHECKING THE LINEARITY AND FLUCTUATION OF THE RF OUTPUT
3-25	REEL (S) TABLE	O	Δ	X	Δ	X	X	X	X
3-25	TG1 ASSEMBLY	O	X	X	Δ	X	X	X	X
3-6	FEH ASSEMBLY	X	X	X	Δ	X	X	X	X
3-23	DRUM BASE	X	X	O	O	O	O	O	O
3-2	DRUM ASSEMBLY	X	X	O	O	O	O	O	O
3-24	SHUTTLE (S) AND SHUTTLE (T) BLOCK ASSEMBLIES	X	X	O	O	O	O	O	X
3-5	ACE HEAD BLOCK	X	X	O	Δ	O	O	Δ	X
3-4	CAPSTAN MOTOR	X	X	X	Δ	O	O	O	X
3-3	PINCHI PRESS BLOCK ASS'Y	X	X	X	X	O	O	O	X
3-3	TG8 ASSEMBLY	X	X	X	X	X	X	O	X
3-10	REEL (T) TABLE	X	X	X	X	X	X	Δ	X
3-19	PULLEY GEAR ASSEMBLY	X	O	X	X	X	X	X	X
3-11	PENDULUM ARM ASSEMBLY	X	O	X	X	X	X	X	X

O: ADJUST
Δ: CHECK
X: NOT REQUIRED

1. PREPARATION FOR MECHANISM CHECKS, ADJUSTMENTS AND REPLACEMENT

For removal of the cabinet, printed wiring boards and others, please refer to the service manual "DISASSEMBLY".

1-1. LOADING AND THREADING PROCEDURE WHEN THE POWER TURNS OFF

1-1-1. LOADING AND THREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow 🅐 direction until loading and threading are end.

1-1-2. LOADING AND THREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Applying approx. +9V (300mA) to cam motor with regulated DC power supply makes it loading and threading.

Note : When loading and threading without cassette, claws are caught in four positions as following figure (in the order ①-②-③-④).
So release them with hands.

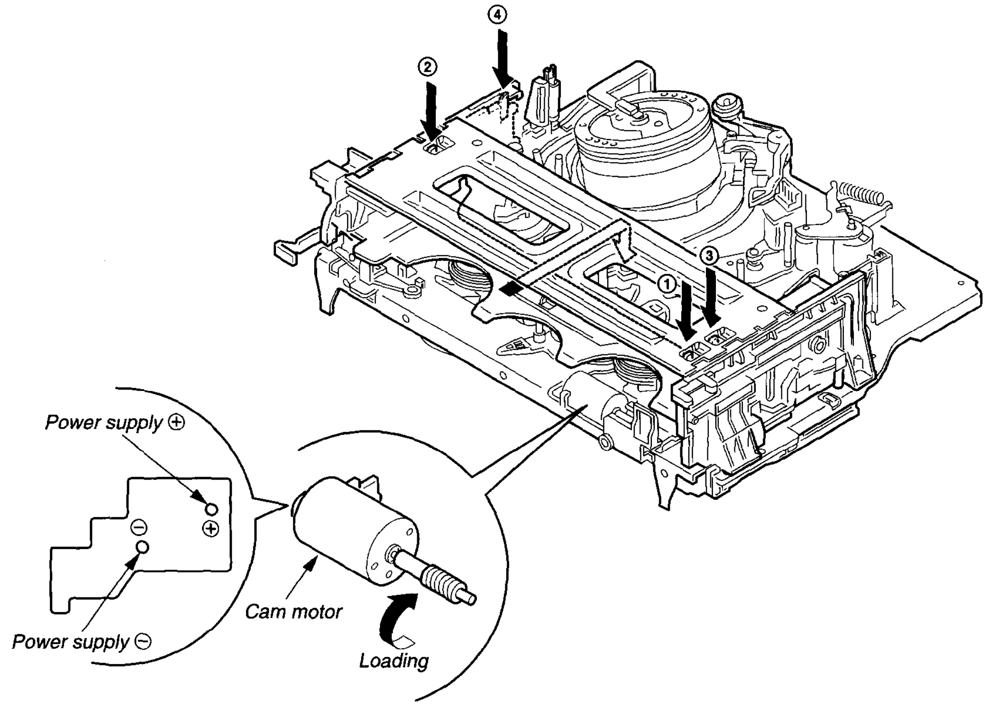


Fig. 1-1

1-2. UNLOADING AND UNTHREADING PROCEDURE WHEN THE POWER TURNS OFF

1-2-1. UNLOADING AND UNTHREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow Ⓑ direction until unthreading is end.
2) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.
3) Turn cam motor in the arrow Ⓑ direction until unloading is end.

1-2-2. UNLOADING AND UNTHREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Apply approx. +5V (300mA) to contrary polarities of cam motor.
2) Unthreading operation begins, tape guides return to their initial positions (Unthreading operation is end but tape remains), then stop cam motor by turning power off.

Note : When unloading begins and cassette lid is closed, turn cam motor in the arrow Ⓐ direction to open tape guard.

3) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.

Note : Take care that tape is not caught at pinch roller.

4) Check that tape is no loosened completely, and apply approx. +5V (300mA) to contrary polarities of cam motor with regulated DC power supply.

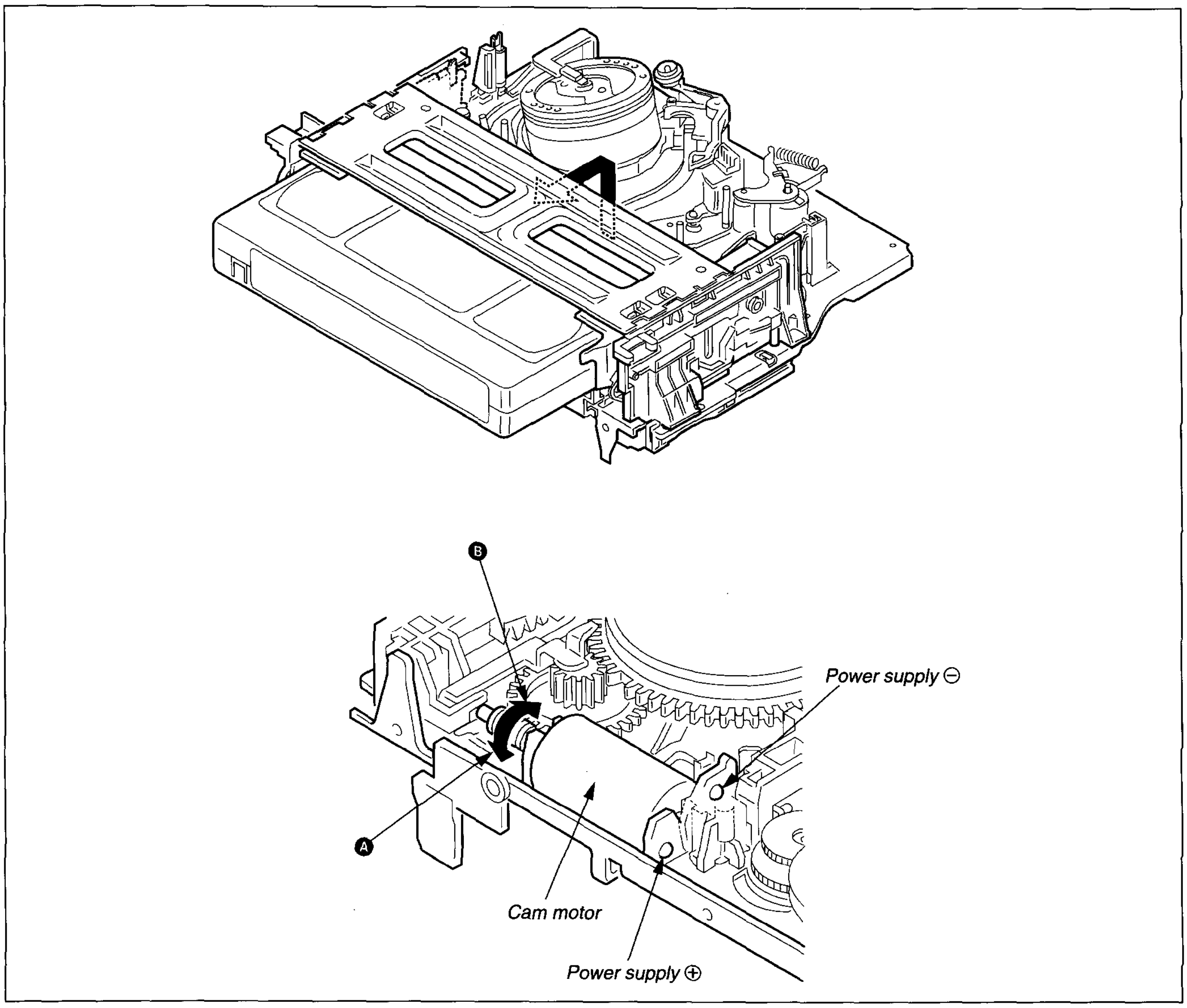


Fig. 1-2

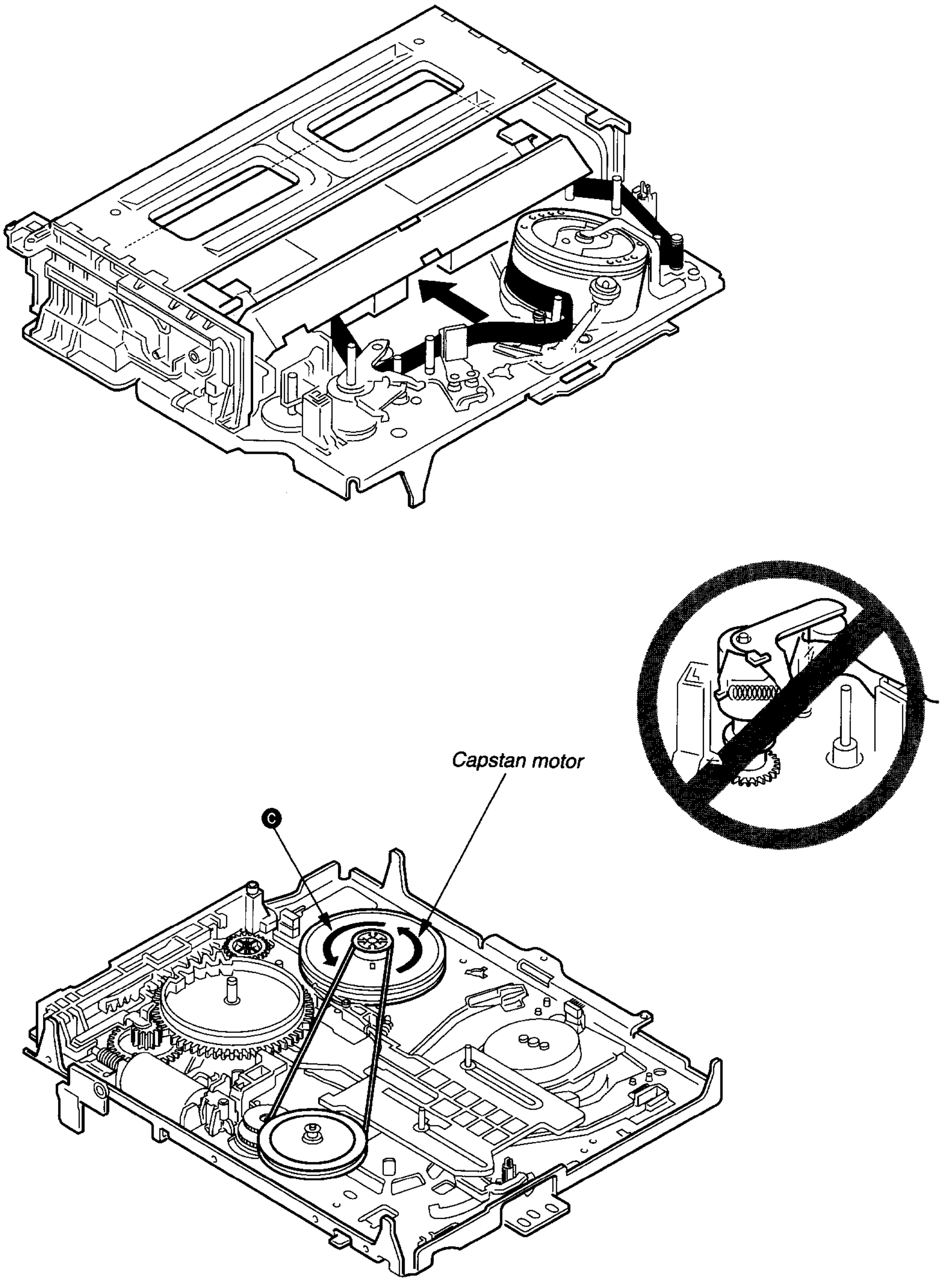

Capstan motor
Ⓒ

Fig. 1-3

1-3. HOW TO COMPLETE THREADING WITHOUT CASSETTE COMPARTMENT

Note 1 : Put the FL block assembly removed the FL top plate on the bottom not to put dust or grease the top sensor and the end sensor luminous plates or not to scratch them.

1) Pull out AC plug from wall outlet.
2) Shade near the end and top sensors with a black masking tape or the like.
3) Connect AC plug to wall outlet.

Note 2 : In this condition, some modes can not be set.
To make loading in this condition, set the video cassette tape without REC proof claw, pull the REC proof lever once and release it.
On loading without video cassette tape, it is necessary to deceive the microcomputer by turning the reel (T) table with hand.
Fast forward and rewind are not available.

Note 3 : After above mentioned operation, be sure to return the mode in the following order.

4) Pull out AC plug from wall outlet to reset the system control microcomputer.
5) Remove the tape near the end and top sensors.

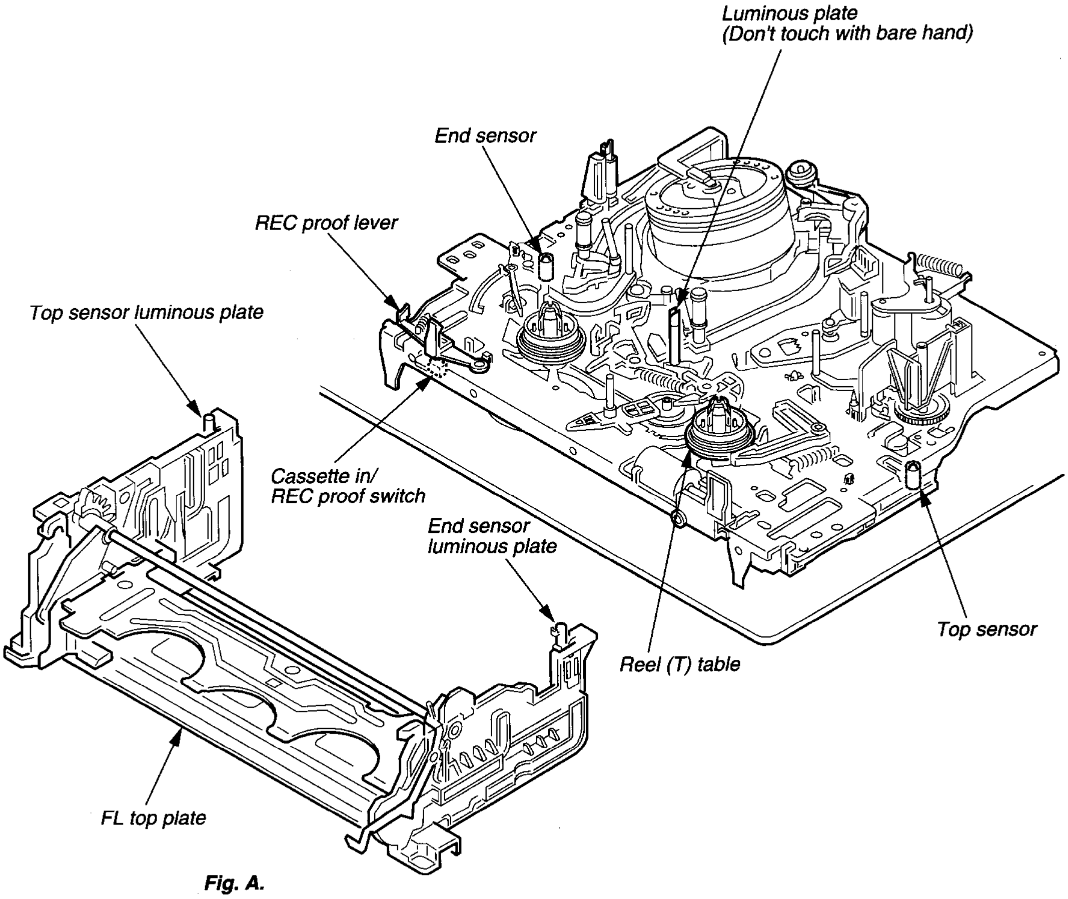

Luminous plate
(Don't touch with bare hand)
End sensor
REC proof lever
Top sensor luminous plate
Cassette in/
REC proof switch
End sensor
luminous plate
Top sensor
Reel (T) table
FL top plate

Fig. A.

Fig. 1-4

2. PERIODIC CHECK AND REPLACEMENT

In order to obtain the best performance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

* The following must be done after every repair regardless of how many hours the user has operated the machine.

2-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-4) which has been dipped in cleaning fluid (Jig Ref. No. J-3) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by the hand. (Never try to clean by using the motor to turn it.)
2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

2-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

2-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that has been dipped in cleaning fluid.

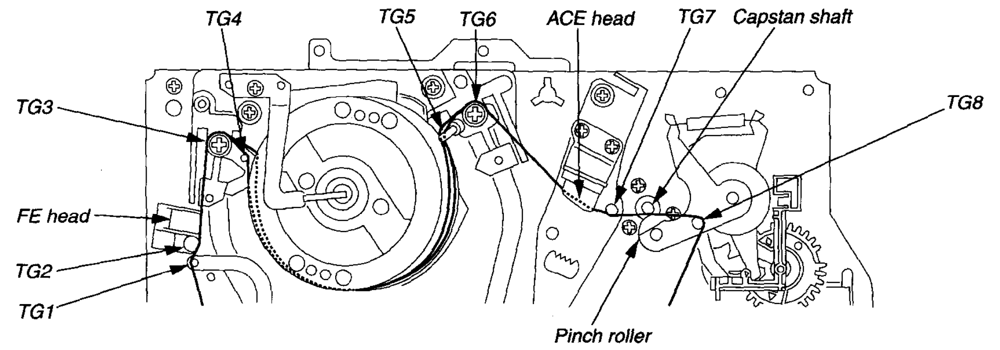


Fig. 2-1 Parts requiring cleaning

2-4. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to users' operating hours.

Maintenance & Check \ Operating Hours (H)		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Tape Transportation System	Cleaning of tape transportation system	O	O	O	O	O	O	O	O	O	O	This cleaning must be done whenever a repair is made.
	Cleaning and degaussing of ACE assembly	O	O	O	O	O	O	O	O	O	O	
	Cleaning and degaussing of upper drum assembly	O	O	O	O	O	O	O	O	O	O	The life of the head varies, depending on operational conditions and method.
Performance Confirmation	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which causes abnormal sound.
	Measurement of FWD back tension	—	☆	—	☆	—	☆	—	☆	—	☆	Confirmation must be made according to 4-1-1. Specified value : Adjust to 5.0504 to 6.5214mN•m (51.5 to 66.5g•cm) (without TC assembly*) or 3.7755 to 5.0994mN•m (38.5 to 52.0g•cm)(with TC assembly*)
	Confirmation of brake system	—	☆	—	☆	—	☆	—	☆	—	☆	Confirmation must be made according to section.
	Confirmation of record and playback functions	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.
	Measurement of forward torque	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust to 4.9033 to 8.8259mN•m (50 to 90 g•cm)

O : Cleaning ☆ : Confirmation

Note : On overhaul
When overhauling the unit, replace parts as indicated in the above table.

2-5. TOOLS AND FIXTURES REQUIRED FOR SERVICING

Ref. No.	Name		Part No.	Caved Jig No.	Remarks
J-1	Torque Measurement Cassette VHT-103S		J-6090-072-A		For FWD & back tension torque measurement.
	Torque Measurement Cassette VHT-404S		J-6082-012-A		For CUE and REVIEW torque measurement.
J-2	Alignment Tape	KRV-52NE* (NTSC)	8-192-605-41		Tape path, Audio azimuth, X-value adjustments
		KRV-51N2 (NTSC)	8-192-605-32		Electrical adjustments, Operation checks
		KRV-52PL (PAL)	8-192-605-46		Tape path, Audio azimuth, X-value adjustments
		KRV-51P (PAL)	8-192-605-36		Electrical adjustments, Operation checks
J-3	Cleaning fluid		Y-2031-001-0	—	
J-4	Chamois Leather		2-034-697-00	—	
J-5	Dental Mirror (With Handle) Dental Mirror (Mirror)		J-6080-029-A J-6080-030-1	SL-5052	Tape path and tape traveling adjustments or checks.
J-6	FLOIL SG-646		7-651-000-44		Net. 20g
J-7	Diamond Oil NT-68		7-661-018-18		
J-8	Screw Lock G (1401B)		7-432-114-11		
J-9	X-value adjusting driver		J-6090-073-A		X-value adjustment
J-10	Mode Selector II		J-6082-282-A	—	For S mechanism stand-alone operation
J-11	Connector Conversion Jig		J-6090-052-A	—	For S mechanism stand-alone operation
J-12	S Type Capstan Board		J-6090-075-A	—	For S mechanism stand-alone operation

* Be sure to use KRV-52NE having version number.

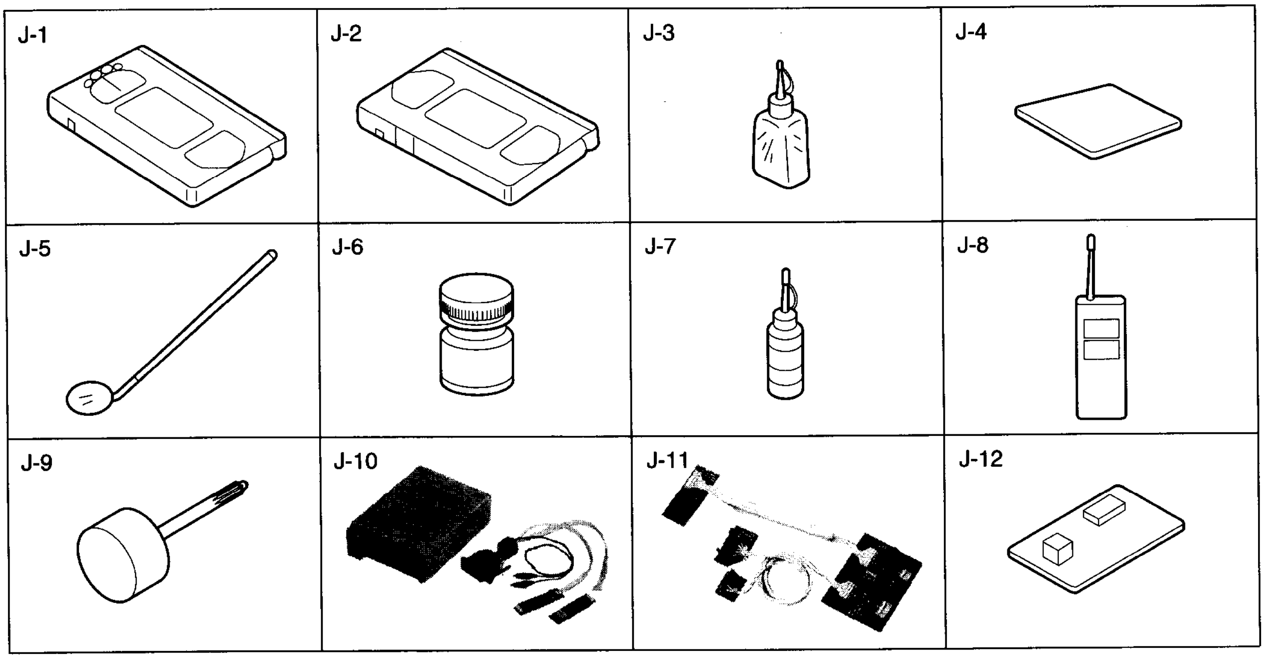


Fig. 2-2

2-6. HOW TO USE THE MODE SELECTOR Ⅱ FOR ADJUSTING S TYPE MECHANISM ASSEMBLY

2-6-1. OUTLINE

To activate the VHS system S type mechanism assembly using mode selector Ⅱ (J-6082-282-A), use connector conversion jig (J-6090-052-A) and the S type capstan board (J-6090-075-A). By using the connector conversion jig and the S type capstan board, the following operations are possible.

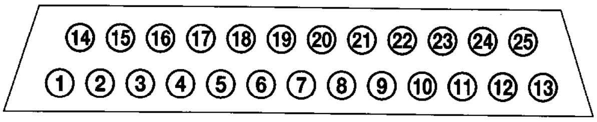
- Loading and unloading action by the loading motor.
- Normal and reverse rotation of the capstan motor.

2-6-2. PREPARATION

1) In order to drive the capstan motor, the power +5V and +12V are supplied from the Mode Selector Ⅱ. Disassemble the D-SUB connector of the Mode Selector cable, then solder the following three places.

Supplied 3-pin cable	D-SUB connector of the Mode Selector Ⅱ	Voltage
Pin 1 (Red index)	Pin 20	+12V
Pin 2	Pin 25	GND
Pin 3	Pin 24	+5V

- Connector pin number assignment of the D-SUB connector (From the soldering side)



- When connections are made, check that +5V and +12V are available at the 3-pin cable connector.

2) CHECKING THE SOFTWARE VERSION
Turn on the power of the Mode Selector Ⅱ.
If the reading of the software version on the Mode Selector Ⅱ is not 1.10 or higher, replace the new ROM (J-6082-314-A).

2-6-3. CONNECTION

1) S TYPE CAPSTAN BOARD ATTACHMENT
Replace the capstan board supplied with the connector conversion jig (J-6090-052-A) with the S type capstan board (J-6090-075-A).
2) CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE MODE SELECTOR Ⅱ.
Insert the connectors of the two 6-pin cables (one is white and the other is black) and the 3-pin cable from the Mode Selector Ⅱ to the corresponding connectors on the connector conversion jig (J-6090-052-A).
3) CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE S TYPE MECHANISM ASSEMBLY
With the power of the Mode Selector Ⅱ turned off, insert the following two connectors to the corresponding connectors on the S type mechanism assembly.
    - 3-pin connector for the loading motor
    - 10-pin connector for the capstan motor

    Set the speed control for the minimum setting (fully counterclockwise).

2-6-4. OPERATION

1) OPERATION OF THE LOADING MOTOR ON THE S TYPE MECHANISM ASSEMBLY
    ① Select the H type mechanism assembly setting on the Mode Selector Ⅱ.
    ② Operating procedures after the mechanism selection
    For the operating procedures, see pages 3 to 5 of "8mm Video Mechanical Adjustment Manual Ⅳ (TK Mechanism) Supplement-1".
    For the loading procedure, see page 4 of "VHS Mechanical Adjustment manual Ⅳ (S Mechanism)".
2) OPERATION OF THE CAPSTAN MOTOR ON THE S TYPE MECHANISM ASSEMBLY
    ① By the loading motor operation under the item 1), change the mode setting to the FF/REW mode.
    ② Turn the speed control gradually in clockwise direction, then the capstan motor starts rotating. To turn the capstan motor in desired rotating direction, change the FF/REW setting of the rotating direction switch.

2-6-5. PRECAUTIONS

- Turn the speed control only when necessary. Otherwise, hold the speed control turned at fully counterclockwise direction. If the power of the Mode Selector Ⅱ is turned on with the speed control turned in clockwise direction, +12V power fails and the power of the Mode Selector Ⅱ cannot be turned on.
- Although the connector conversion jig (J-6090-052-A) has rubber feet, do not make a short circuit on the bottom surface of the connector conversion jig via peripheral conductive materials.

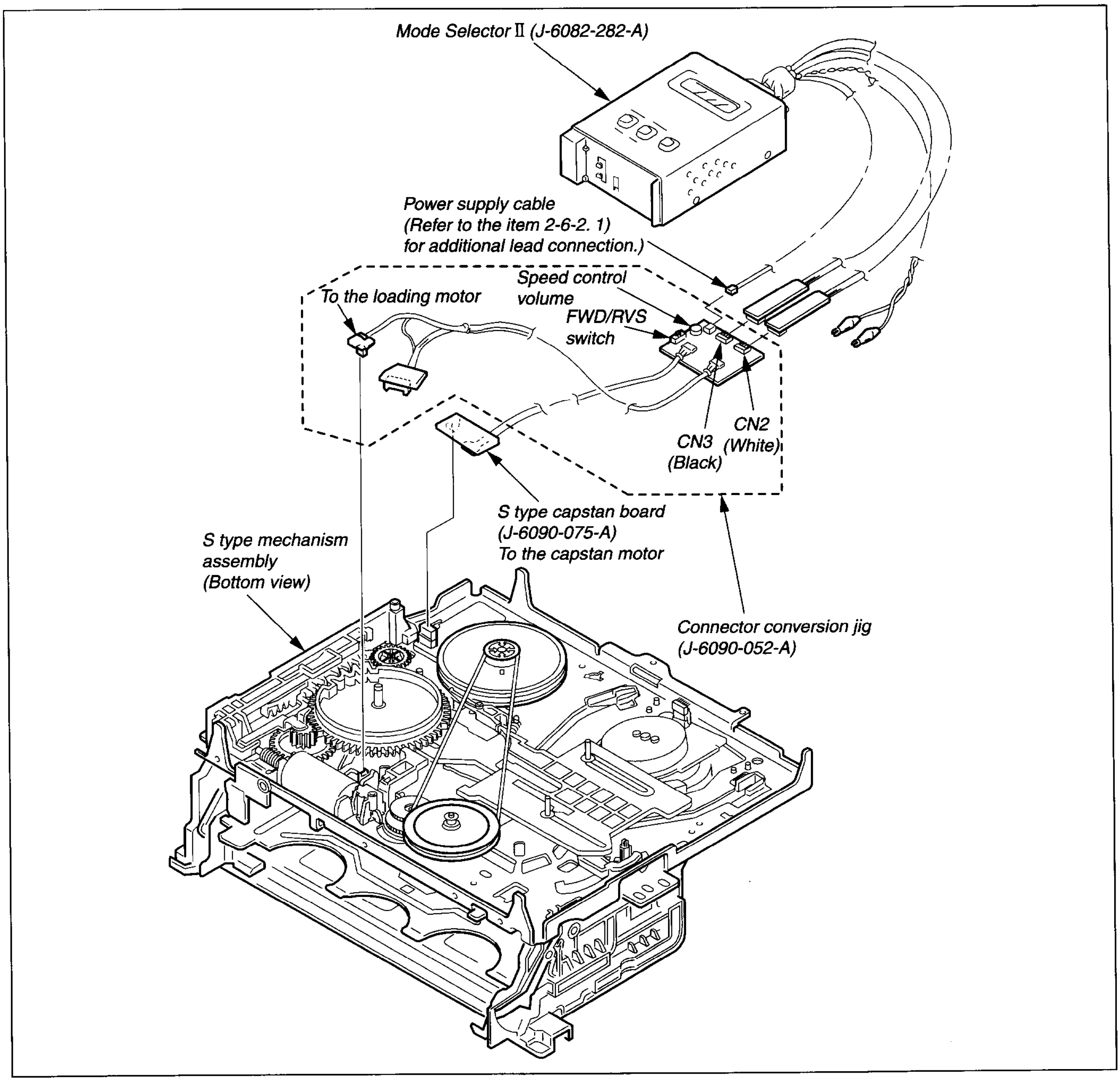

Mode Selector II (J-6082-282-A)
Power supply cable
(Refer to the item 2-6-2. 1)
for additional lead connection.)
Speed control volume
To the loading motor
FWD/RVS switch
CN2 (White)
CN3 (Black)
S type capstan board
(J-6090-075-A)
To the capstan motor
S type mechanism assembly
(Bottom view)
Connector conversion jig
(J-6090-052-A)

Fig. 2-3

2-6-6. CHECKING THE MECHANISM MODE BY THE MARK CARVED ON THE SLIDER

As shown in the right figure, the mechanism mode can be identified by checking the mark carved on the slider pointed by the loading gear shaft.

Carved mark	Mode
CD	Cassette down
EJ	Eject
UL	Unload end
LE	Load end
RV	Reverse
PR	Pinch release
FP	FWD pause
FW	FWD
ST	Stop
FR	FF/REW

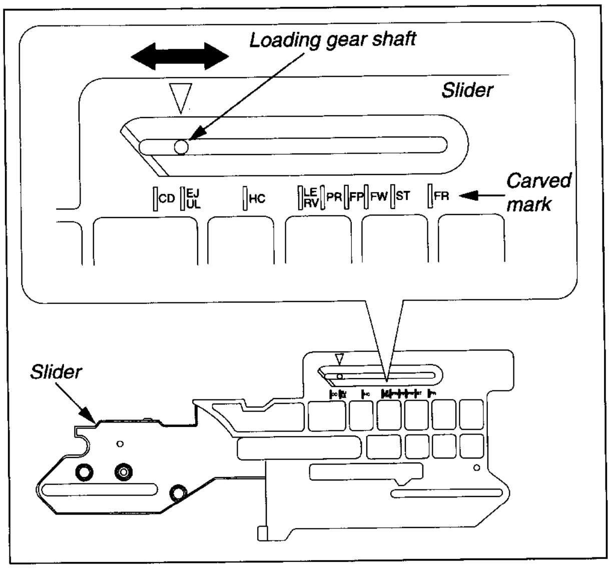

Loading gear shaft
Slider
CD
EJ
UL
HC
LE
RV
PR
FP
FW
ST
FR
Carved mark
Slider

Fig. 2-4

2-7. PHASE ADJUSTMENT ON ATTACHING S TYPE MECHANISM ASSEMBLY

As shown below, adjust the phase between the rotary switch on the MA board and the cam gear.

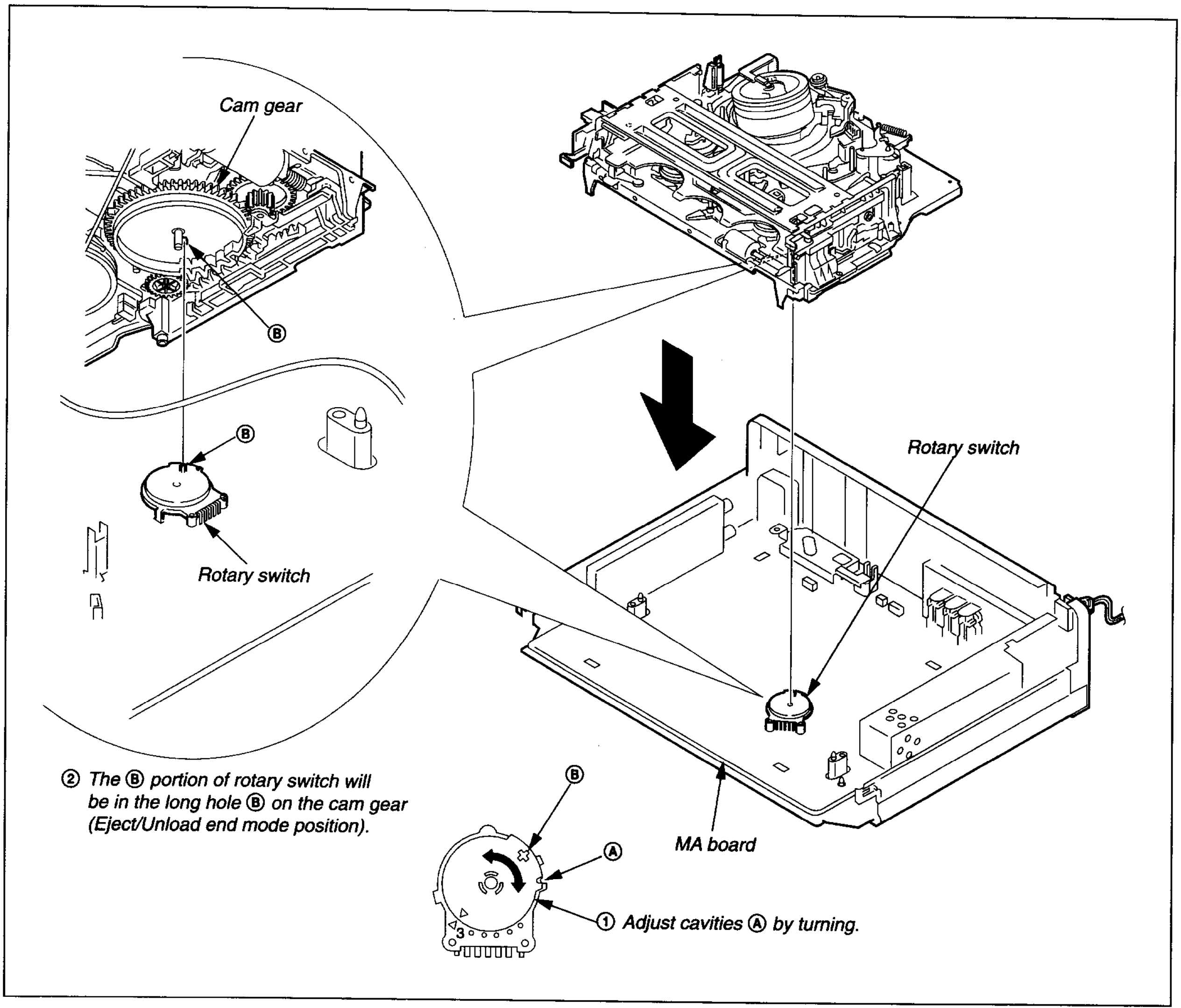

Cam gear
Ⓑ
Ⓑ
Rotary switch
Rotary switch
② The Ⓑ portion of rotary switch will be in the long hole Ⓑ on the cam gear (Eject/Unload end mode position).
Ⓑ
Ⓐ
MA board
① Adjust cavities Ⓐ by turning.

Fig. 2-5

3. MAINLY MECHANICAL PARTS REPLACEMENT

Notes:

For the removal of cabinets, printed circuit boards or the like, please refer to the "DISASSEMBLY" section on the service manual of the respective models.

To assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.

When replacing greased parts, grease them in the same way.

Do not oil, grease or touch with bare hands the surfaces that contacts tape of guides and brake shoes.

Install gears to engage each other.

Basically, disassembling and assembling should be done in the unthreading-end condition.

3-1. FL COMPLETE ASSEMBLY

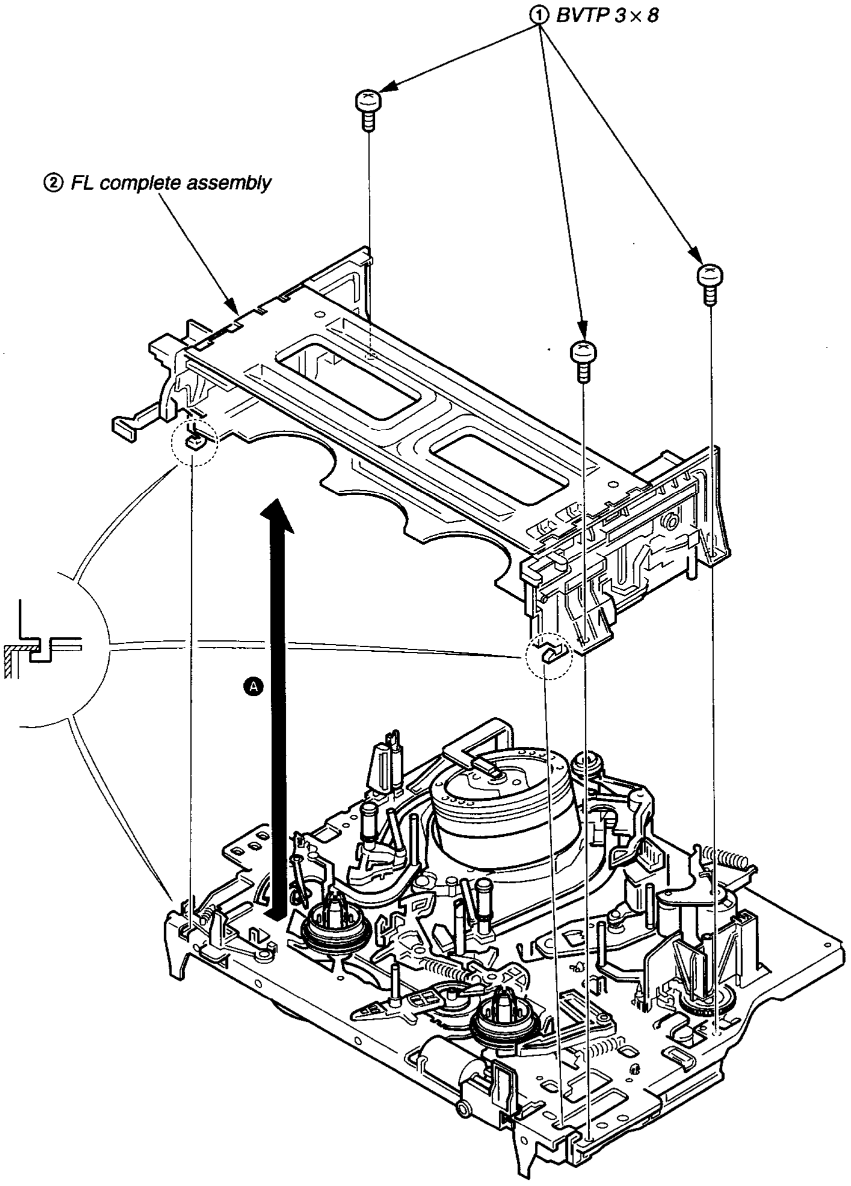
1) Remove screws (BVTP3 × 8) ①.
2) Remove FL complete assembly ② in the arrow 🅐 direction.

Note : Be careful not to damage claws on the bottom and front.

3) Remove torsion spring (deck open) ③.
4) Remove luminous plate (top sensor) ④ and luminous plate (end sensor) ⑤.

[Note on Mounting]

- When mounting FL complete assembly, first insert claws on the bottom and front not to damage.
- Keep clean top sensor and end sensor luminous plates.



Screw tightening torque
① : 0.7845 ± 0.0784N•m (8.0 ± 0.8kg•cm)

Fig. 3-1

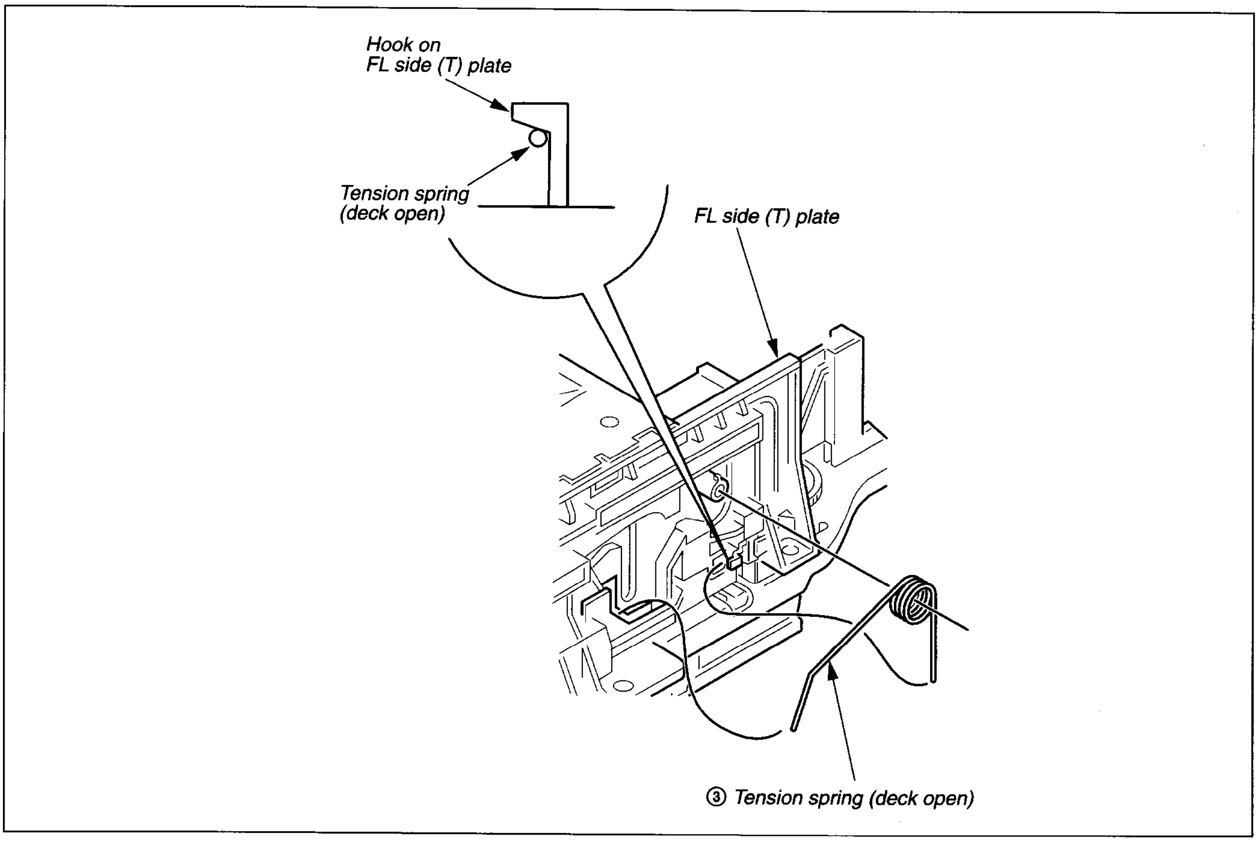

Hook on
FL side (T) plate
Tension spring
(deck open)
FL side (T) plate
③ Tension spring (deck open)

Fig. 3-2

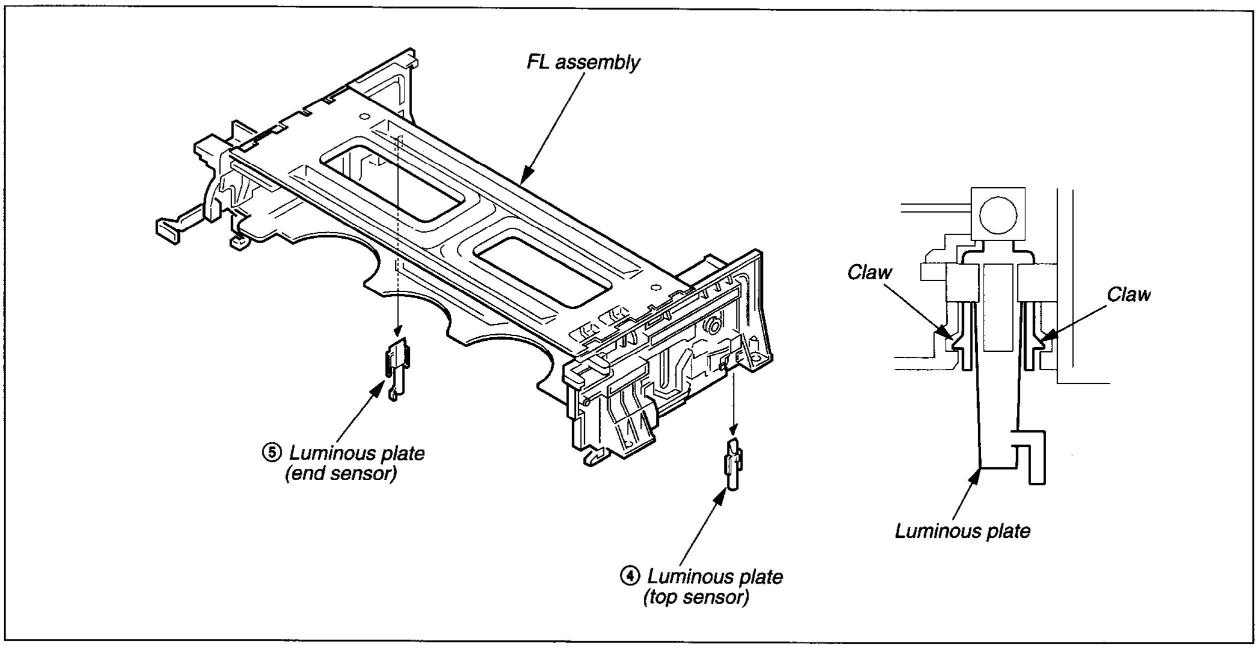

FL assembly
⑤ Luminous plate
(end sensor)
④ Luminous plate
(top sensor)
Claw
Claw
Luminous plate

Fig. 3-3

3-2. DRUM ASSEMBLY

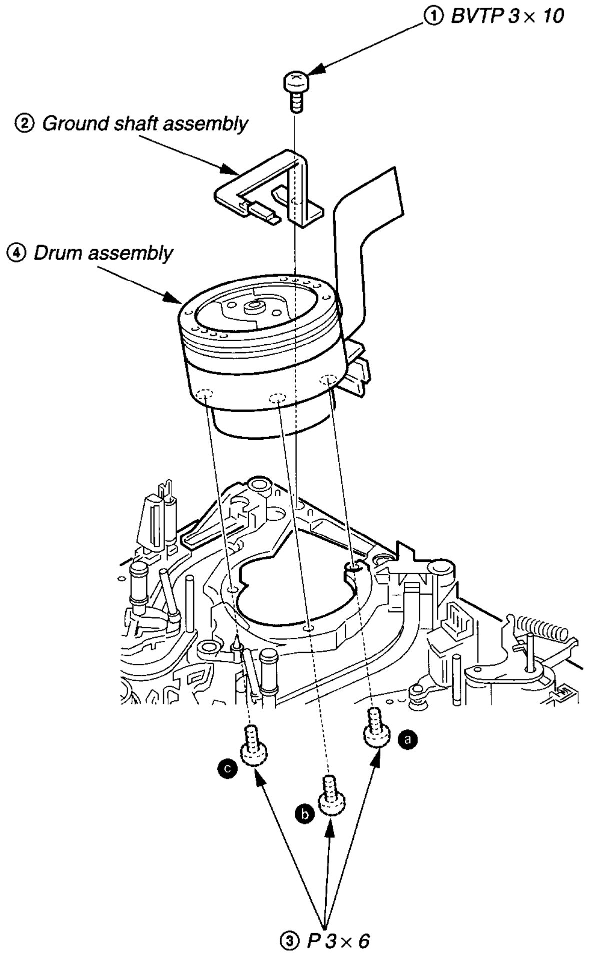
1) Remove screw (BVTP3 × 8) ①.
2) Remove ground shaft assembly ② not to touch its tip with bare hand.
3) Remove screws ③ to remove drum assembly ④.

[Notes on Mounting]

- Don't touch head chips and tip of ground shaft assembly with bare hand.
- Keep clean the surface that contacts tape of drum assembly.
- Tighten screw ③ in the order ⓐ, ⓑ, ⓒ.

[Adjusting after Mounting]

- 4-1. Tape path adjustment



① BVTP 3 × 10
② Ground shaft assembly
④ Drum assembly
ⓐ
ⓑ
ⓒ
③ P 3 × 6

Screw tightening torque
①, ③ : 0.4413 ± 0.0490N•m (4.5 ± 0.5kg•cm)

Fig. 3-4

3-3. PINCH PRESS BLOCK ASSEMBLY, TG8 ASSEMBLY AND THEIR PERIPHERY

1) Remove pinch press block assembly ① while releasing its tip from the claw of lid opener ②.
2) Remove lid opener ② while releasing claw in the arrow Ⓐ direction from mechanical chassis.
3) Remove elevator gear ③.
4) Remove TG8 assembly ④, TG8 arm gear ⑤ and TG8 arm driving gear ⑥.
5) Then remove pinch pressing gear ⑦.

[Notes on Mounting]

- When attaching pinch pressing gear ⑦ and elevator gear ③, be sure to adjust their phases as shown in Fig. A.
- Apply grease to elevator gear ⑦ and pinch shaft as shown in Fig. B.
- Don't touch surface of pinch roller with bare hand.

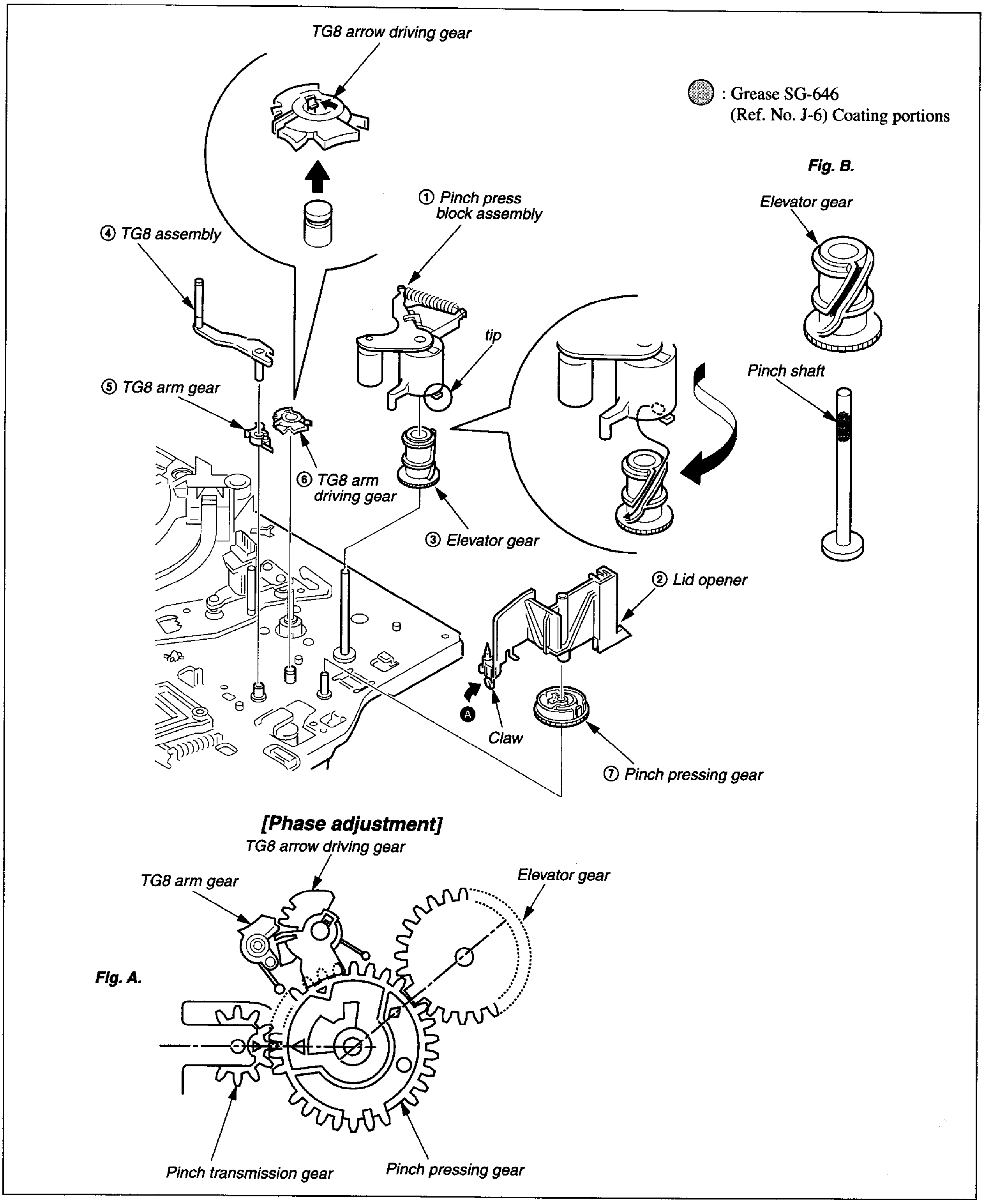

TG8 arrow driving gear
● : Grease SG-646
(Ref. No. J-6) Coating portions
Fig. B.
Elevator gear
① Pinch press block assembly
④ TG8 assembly
tip
Pinch shaft
⑤ TG8 arm gear
⑥ TG8 arm driving gear
③ Elevator gear
② Lid opener
Ⓐ
Claw
⑦ Pinch pressing gear
[Phase adjustment]
TG8 arrow driving gear
TG8 arm gear
Elevator gear
Fig. A.
Pinch transmission gear
Pinch pressing gear

Fig. 3-5

3-4. RUBBER BELT, CAPSTAN MOTOR

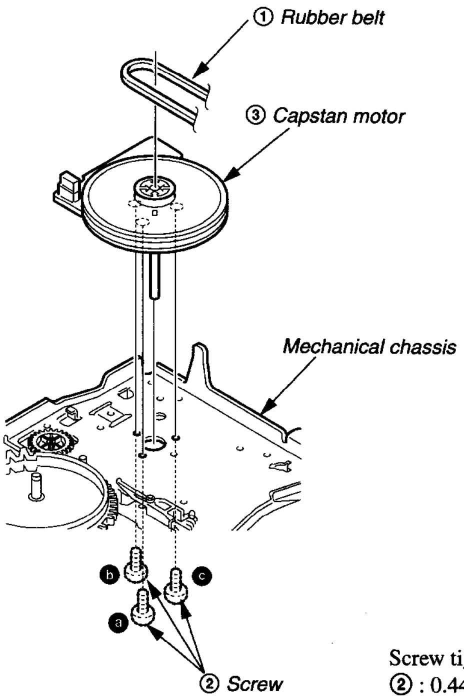
1) Remove rubber belt ①.
2) Remove screws ② to pull out capstan motor ③.

[Notes on Mounting]

- Attach rubber belt not to twist it.
- Don't touch capstan motor with bare hand to keep clean capstan motor.
- Tighten screws ② in the order ⓐ, ⓑ, ⓒ.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.


① Rubber belt
③ Capstan motor
Mechanical chassis
ⓑ
ⓒ
ⓐ
② Screw

Screw tightening torque
② : 0.4413 ± 0.0490N•m (4.5 ± 0.5kg•cm)

Fig. 3-6

3-5. ACE HEAD BLOCK ASSEMBLY

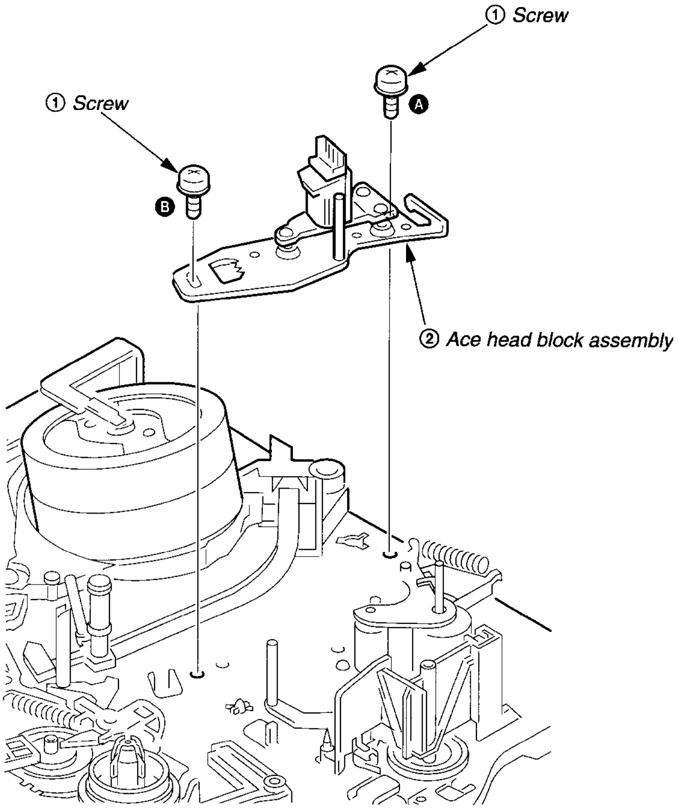
1) Remove screws ① to remove ACE head block assembly ②.

[Notes on Mounting]

- Don't touch capstan motor with bare hand to keep clean capstan motor.
- On tightening screws ①, first, tighten in the order Ⓐ, Ⓑ, next loosen Ⓑ 180 degrees or more and perform adjustments. After adjustments tighten with torque screwdriver (torque; 0.29 ± 0.29 N•m (3.0 ± 0.3kg•cm)).

[Adjustment after Mounting]

- 4-1. Tape path adjustment.



Screw tightening torque
① : 0.7845 ± 0.0784N•m (8.0 ± 0.8kg•cm)

Fig. 3-7

3-6. FEH ASSEMBLY

1) While putting the boss out from mechanical chassis, turn FEH assembly ① in the arrow Ⓐ direction and pull out FEH assembly above.
2) Slide FE head ② out from FEH holder not to break claw (Recorder only).
3) Remove TG2 shaft ③ by pushing with a screwdriver covered with cloth or the like not to scratch the surface.

[Note on Mounting]

- Don't touch FE head and TG2 shaft with bare hand.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

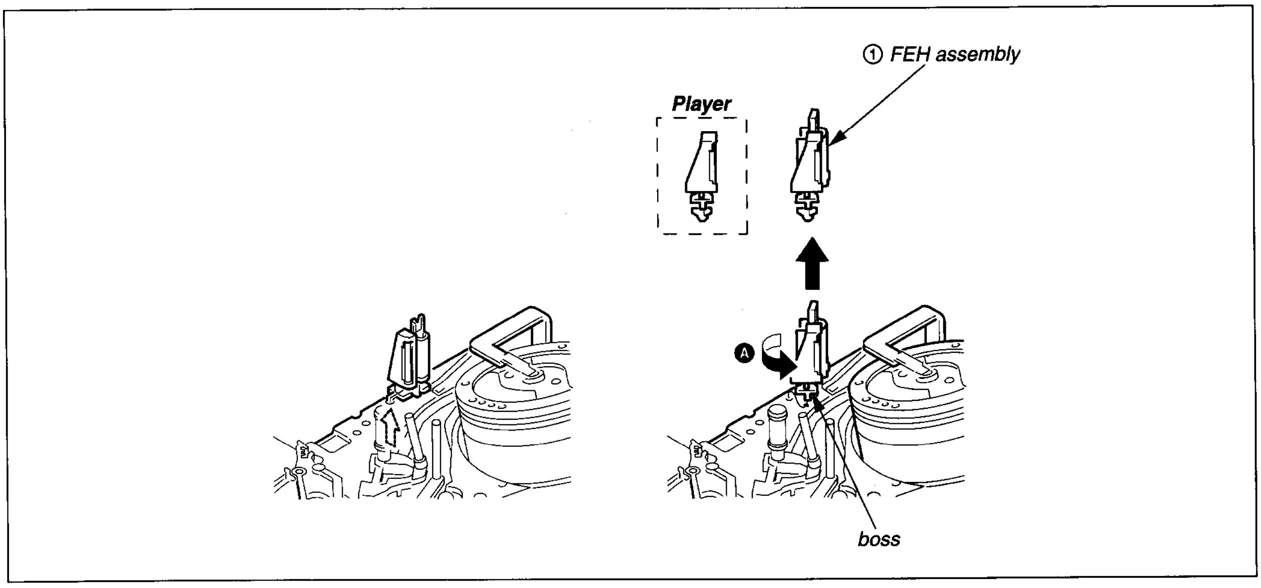

① FEH assembly
Player
Ⓐ
boss

Fig. 3-8

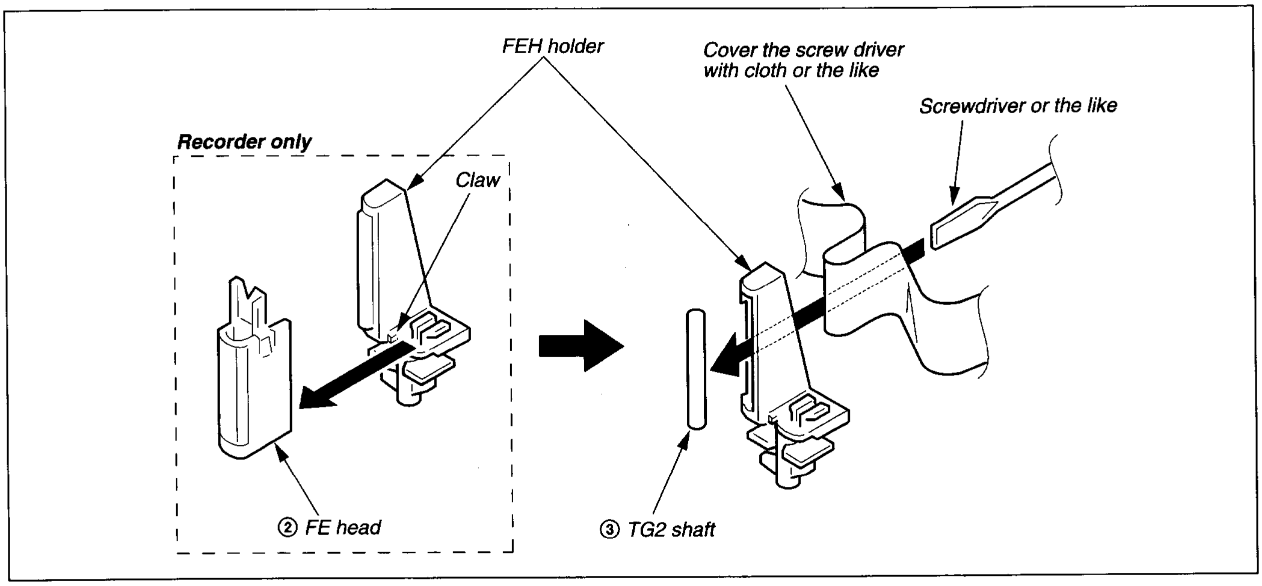

FEH holder
Cover the screw driver with cloth or the like
Screwdriver or the like
Recorder only
Claw
② FE head
③ TG2 shaft

Fig. 3-9

3-7. REC PROOF LEVER

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove tension spring (REC proof) ①.
3) Remove REC proof lever ② in the arrow Ⓑ by pushing claw in the arrow Ⓐ direction.

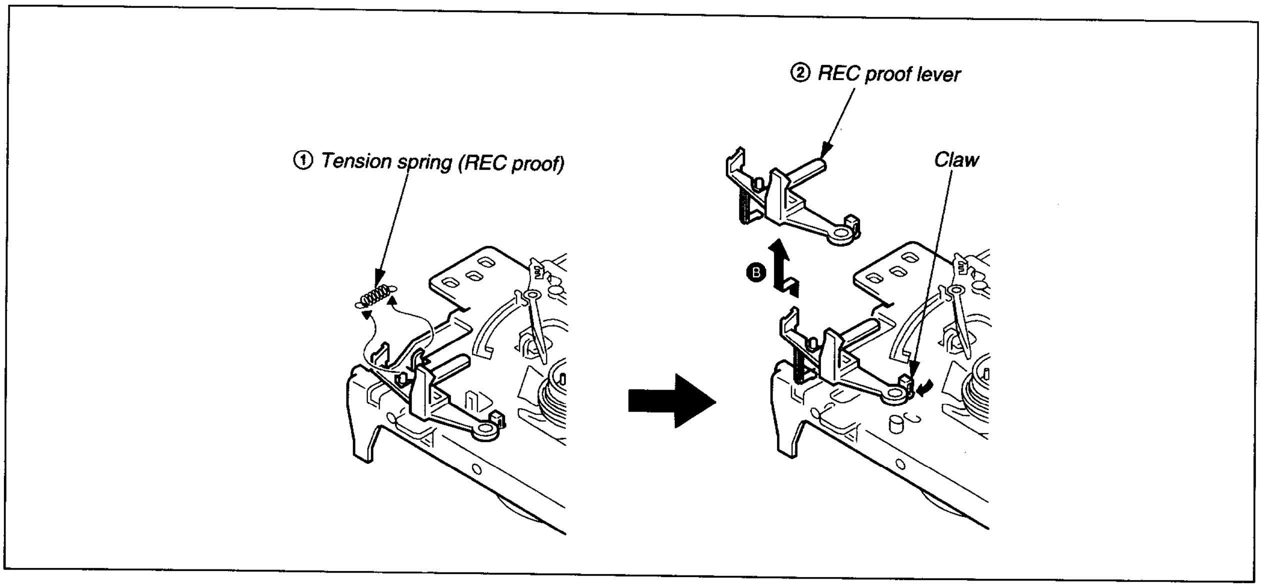

② REC proof lever
① Tension spring (REC proof)
Claw
B

Fig. 3-10

3-8. RVS BRAKE ARM ASSEMBLY

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove extension spring (RVS brake) ①.
3) Turn RVS brake arm assembly ② in the arrow Ⓐ direction and remove it in the arrow Ⓑ.

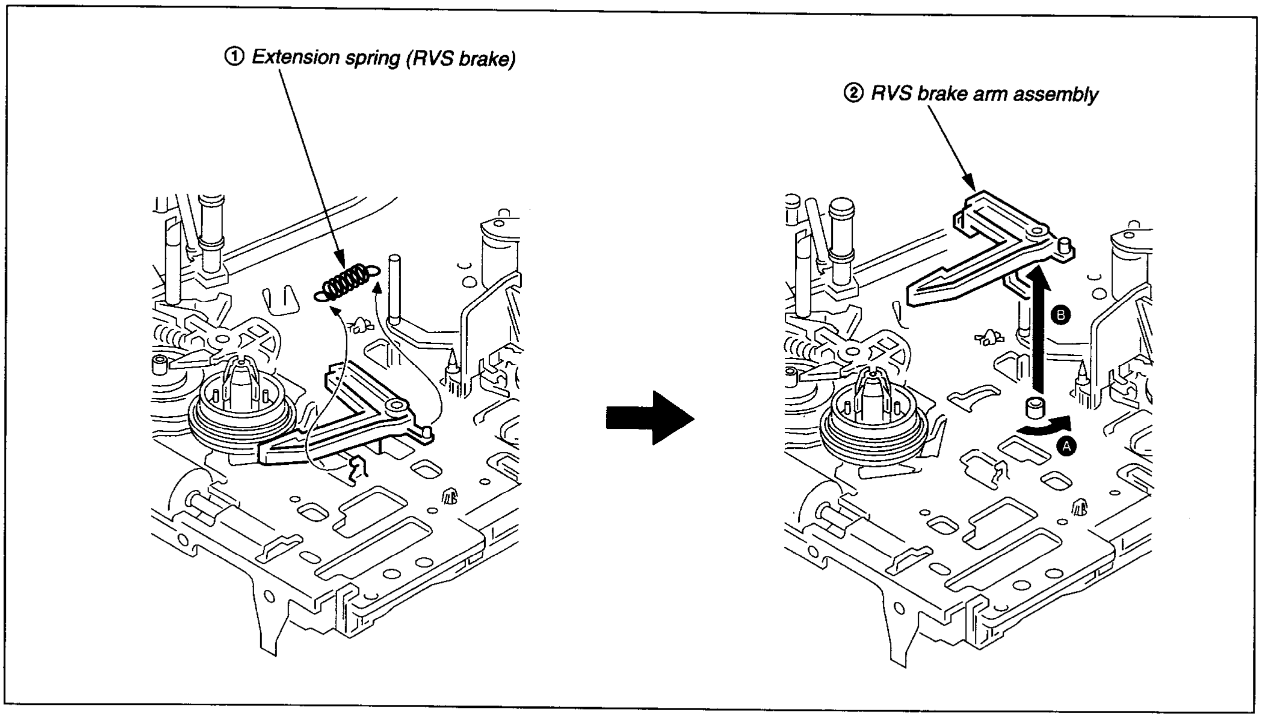
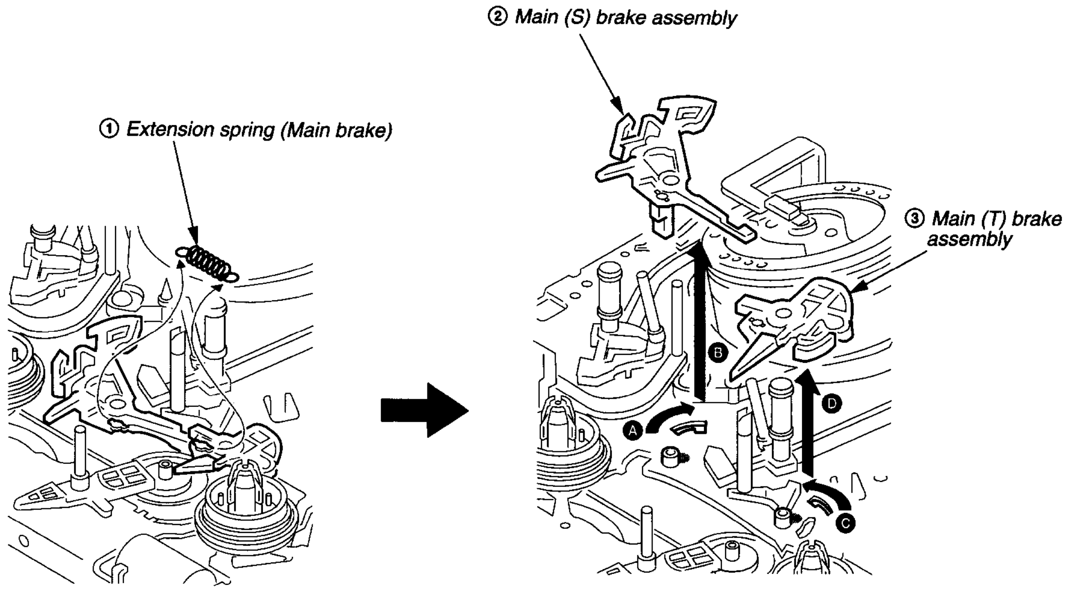

① Extension spring (RVS brake)
② RVS brake arm assembly
B
A

Fig. 3-11

3-9. MAIN (S) AND MAIN (T) BRAKE ASSEMBLIES

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove extension spring (main brake) ①.
3) Turn main (S) brake assembly ② in the arrow 🅐 direction and remove it in the arrow 🅑.
4) Turn main (T) brake assembly ③ in the arrow 🅒 direction and remove it in the arrow 🅓.


② Main (S) brake assembly
① Extension spring (Main brake)
③ Main (T) brake assembly
🅑
🅓
🅐
🅒

● : Grease SG-646
(Ref. No. J-6) Coating portions

Fig. 3-12

3-10. REEL (T) TABLE (BLACK)

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove stopper washer ① to pull reel (T) table ② out.
3) Remove thrust washer ③.

[Note on Mounting]

- Before attaching, confirm the oil is applied at the top of reel (T) shaft.

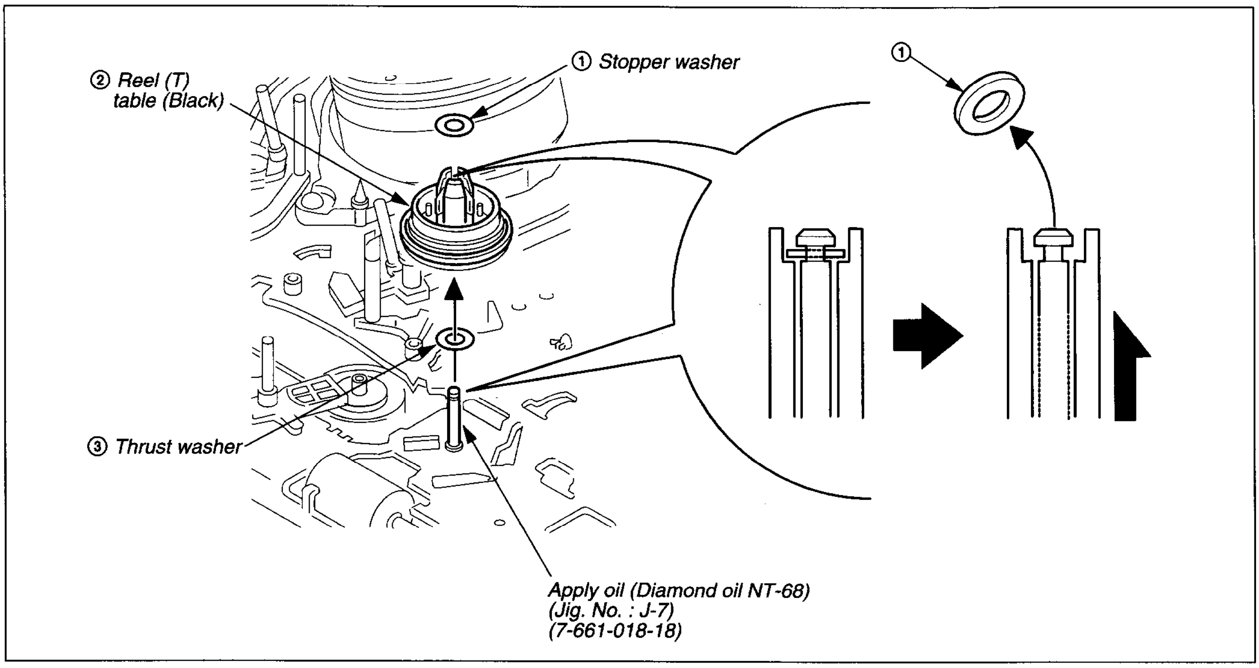

② Reel (T) table (Black)
① Stopper washer
①
③ Thrust washer
Apply oil (Diamond oil NT-68)
(Jig. No. : J-7)
(7-661-018-18)

Fig. 3-13

3-11. PENDULUM ARM ASSEMBLY

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove main (S) and main (T) brake assemblies. (Refer to 3-9.)
3) While releasing claws from the pendulum arm shaft in the arrow A direction, pull out pendulum arm assembly ①.

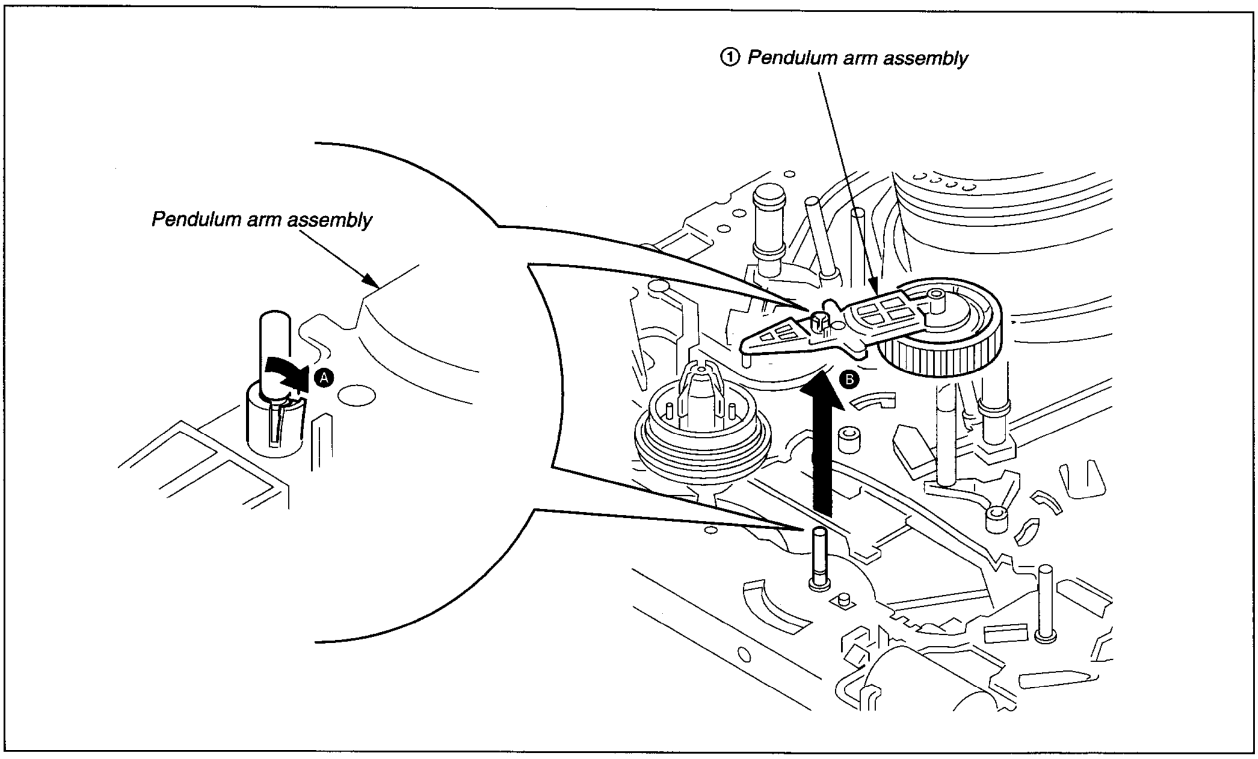

① Pendulum arm assembly
Pendulum arm assembly
A
B

Fig. 3-14

3-12. FL SLIDER BLOCK ASSEMBLY

1) Remove FL complete assembly. (Refer to 3-1.)
2) Set the mechanism deck upside down.
3) Remove a screw (BVTP 3 × 8) ① and then retainer plate ② is getting out of place.
4) Slide FL slider block assembly ③ off in the arrow Ⓐ direction and raise it up.

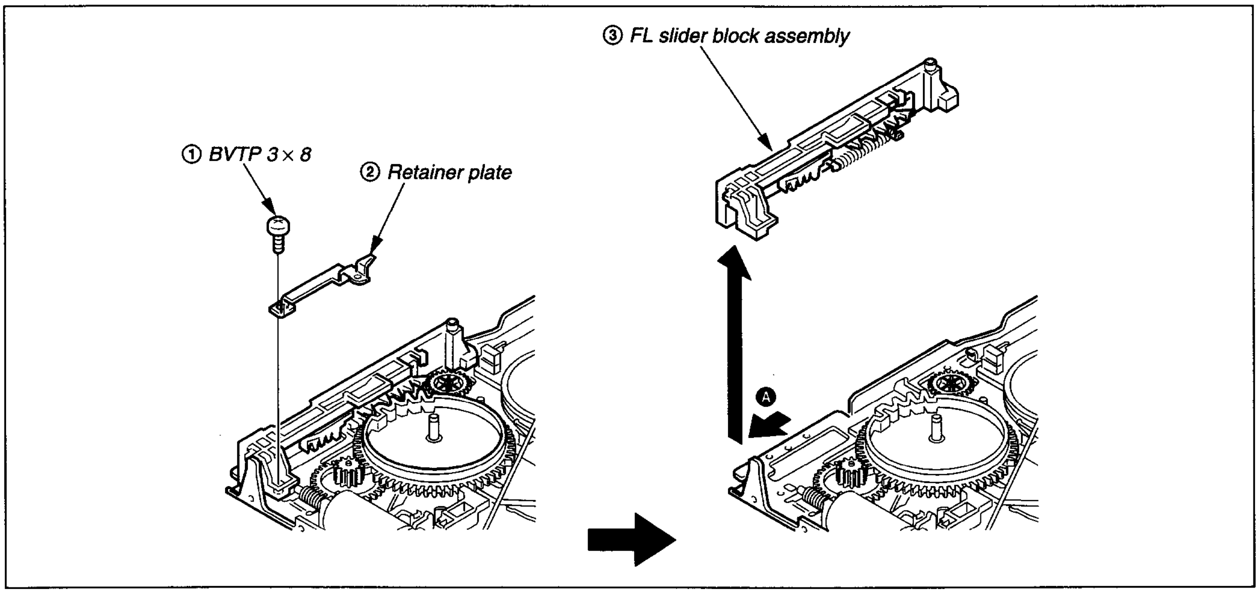

③ FL slider block assembly
① BVTP 3 × 8
② Retainer plate
Ⓐ

Fig. 3-15

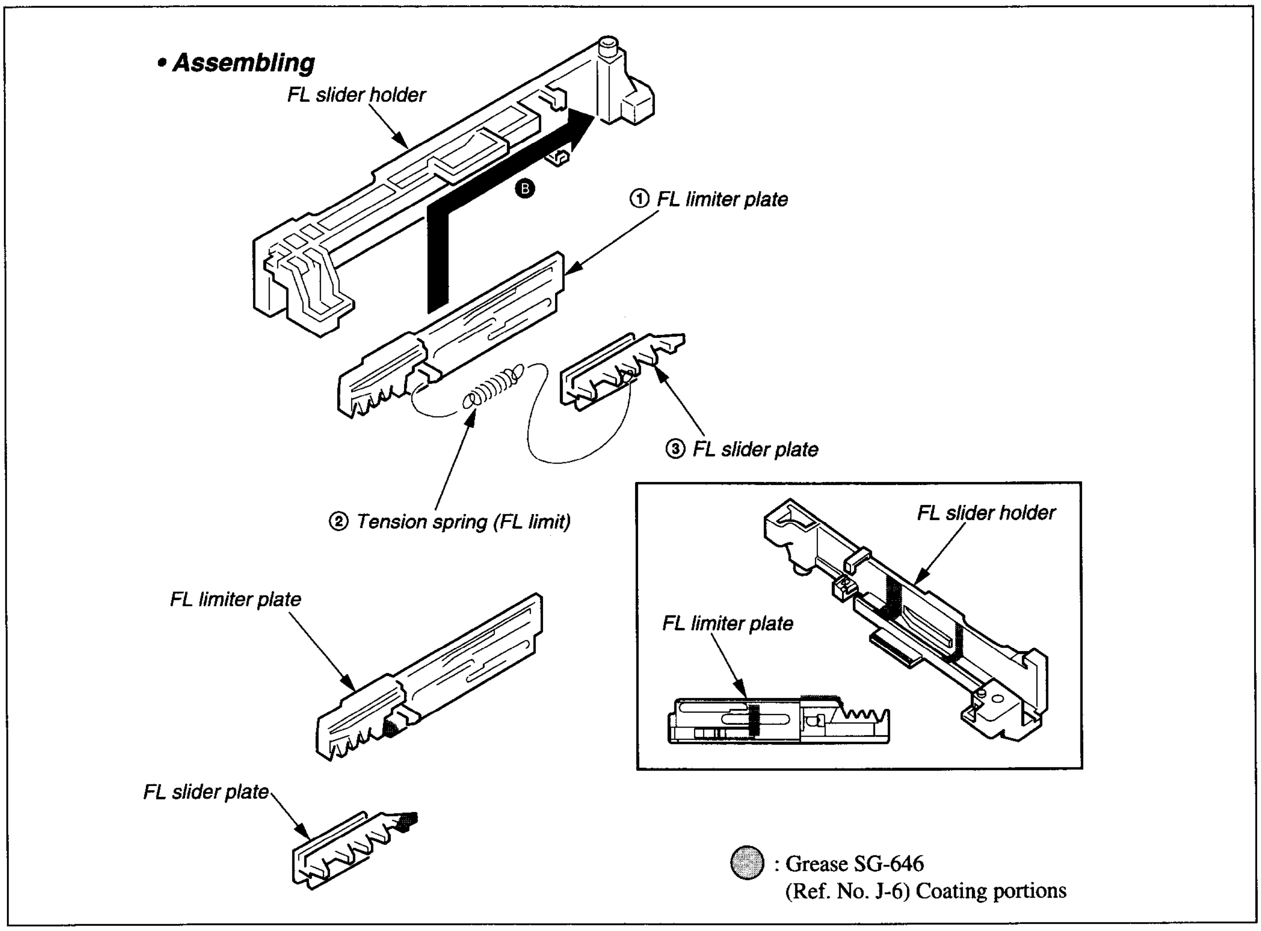

• Assembling
FL slider holder
Ⓑ
① FL limiter plate
③ FL slider plate
② Tension spring (FL limit)
FL limiter plate
FL slider plate
FL slider holder
FL limiter plate
● : Grease SG-646
(Ref. No. J-6) Coating portions

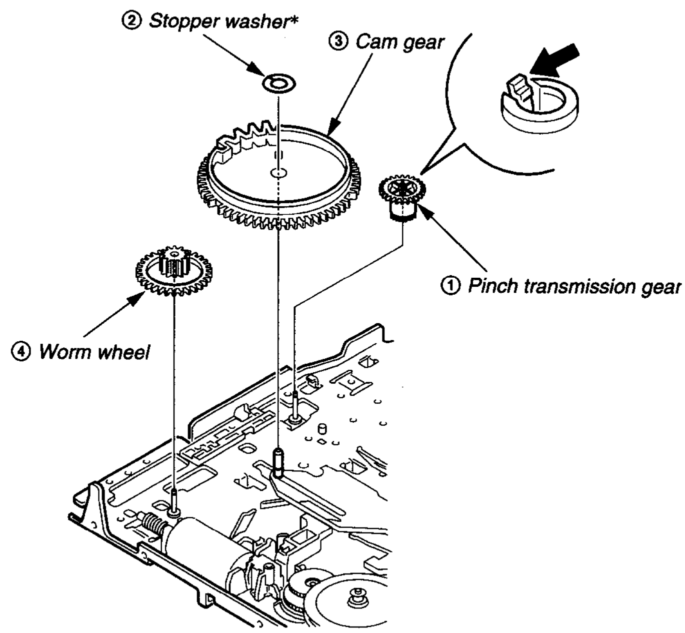
Fig. 3-16

3-13. PINCH TRANSMISSION GEAR, CAM GEAR, WORM WHEEL

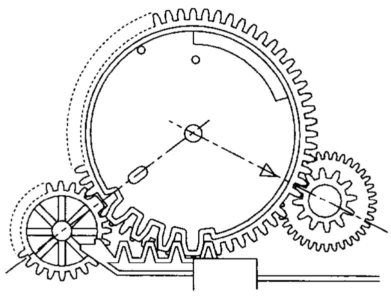
1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove FL slider block assembly. (Refer to 3-12.)
3) Remove pinch transmission gear ① by putting off its claw from shaft.
4) Remove stopper washer ②* to pull out cam gear ③.
5) Remove worm wheel ③ by putting off its claw from shaft.

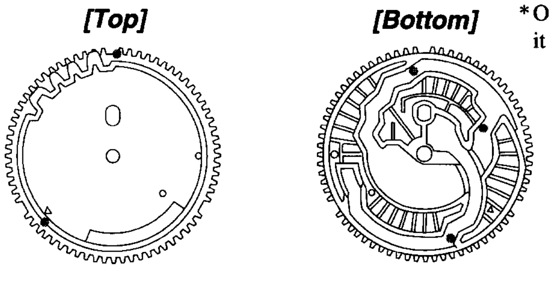
[Note on Mounting]

- Before attaching cam gear ③, confirm that the specified locations are coated with grease SG-646 (Ref. No. J-6).
- Adjust the phase of gears each other.


② Stopper washer*
③ Cam gear
① Pinch transmission gear
④ Worm wheel

• Phase adjustment





● : Grease SG-646 (Ref. No. J-6) Coating portions

* Once remove stopper washer ②, don't use it again. Replace it with new one.

Fig. 3-17

3-14. CAPSTAN BRAKE ASSEMBLY, CAPSTAN BRAKE SHAFT

1) Remove rubber belt. (Refer to 3-4.)
2) Remove cap brake spring ①.
3) Remove capstan brake assembly ② by putting off claw of capstan brake shaft ③.
4) Set the mechanical chassis bottom side down.
5) While pushing the boss of capstan brake shaft ③, turn it clockwise to remove it.

[Note on Mounting]

- Don't touch shoe of capstan brake assembly with bare hand.

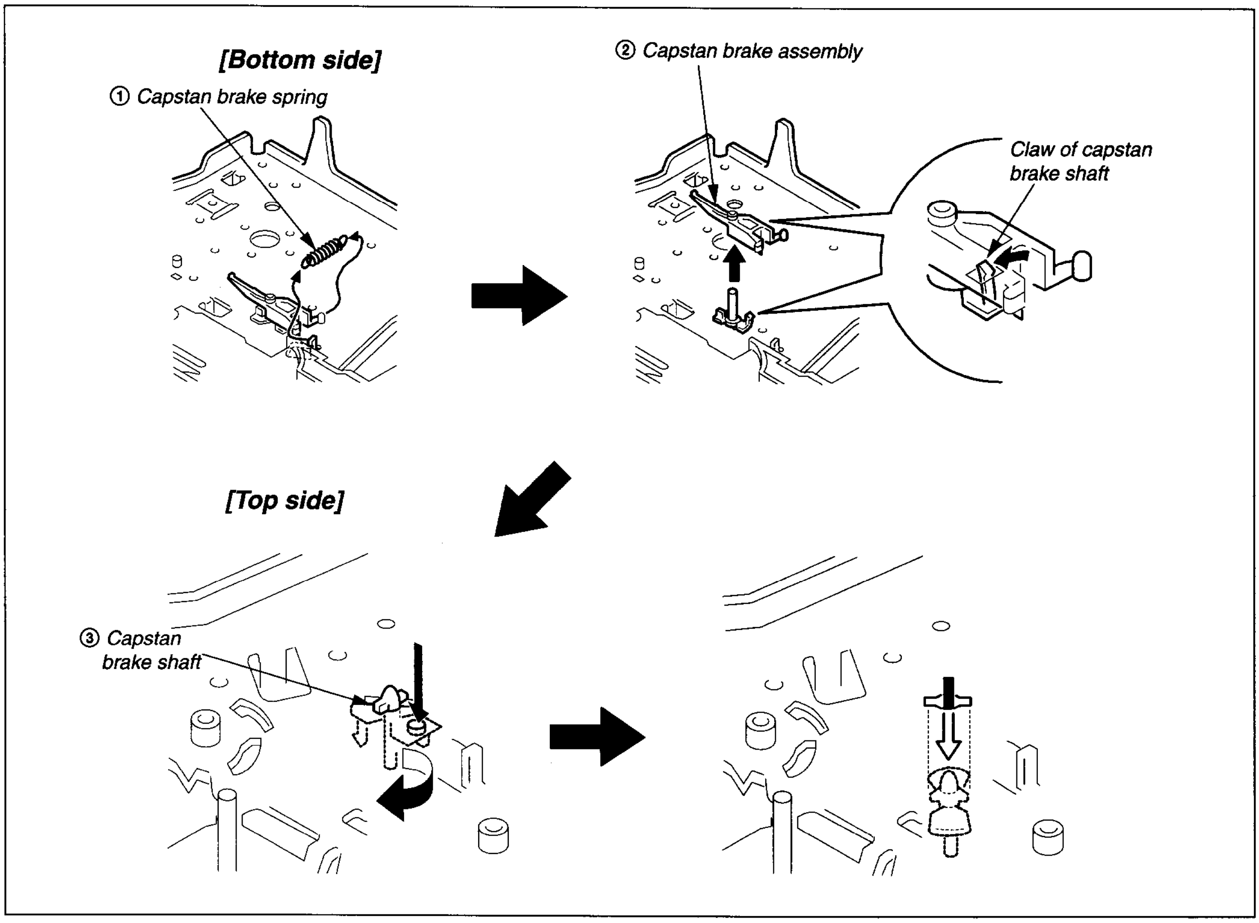

[Bottom side]
① Capstan brake spring
② Capstan brake assembly
Claw of capstan brake shaft
[Top side]
③ Capstan brake shaft

Fig. 3-18

3-15. FL SLIDER GUIDE

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove FL slider block assembly. (Refer to 3-12.)
3) Remove FL slider guide ① while pushing claws in the arrow Ⓐ direction.

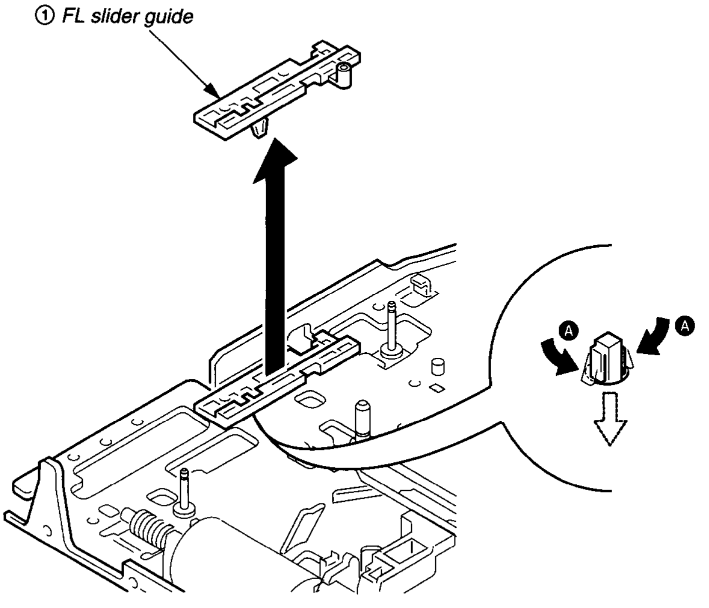


Fig. 3-19

3-16. SLIDER

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove rubber belt. (Refer to 3-4.)
3) Remove FL slider block assembly. (Refer to 3-12.)
4) Remove cam gear. (Refer to 3-13.)
5) Remove stopper washers ① and remove slider ② in the arrow direction.

[Note on Mounting]

- Before attaching slider ②, confirm the specified locations are coated with grease SG-646 (Ref. No. J-6).
- When attaching slider ②, adjust "Δ" mark on slider to loading gear (T) shaft as shown in Fig. A.

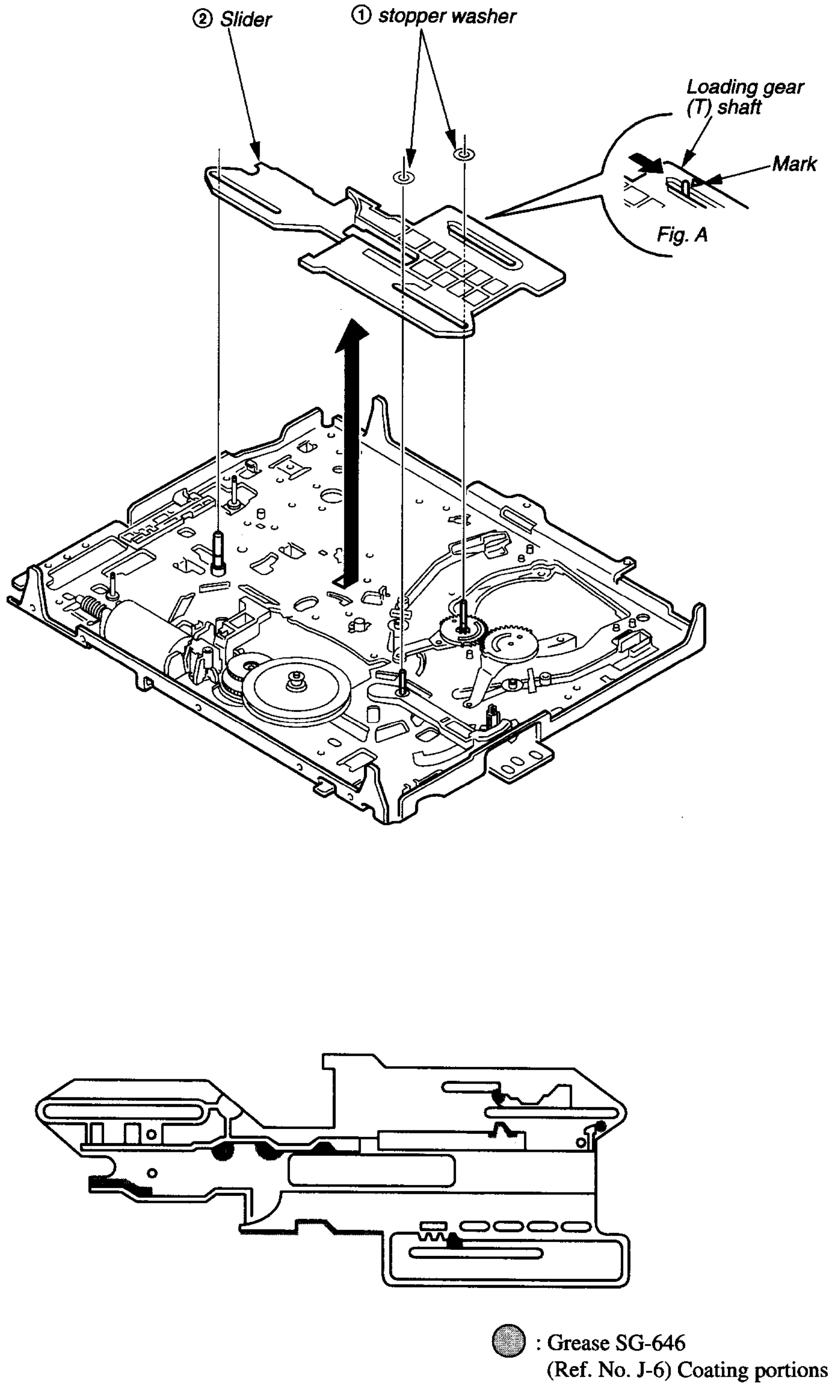

② Slider
① stopper washer
Loading gear (T) shaft
Mark
Fig. A
● : Grease SG-646
(Ref. No. J-6) Coating portions

Fig. 3-20

3-17. TG1 DRIVING ARM

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove rubber belt. (Refer to 3-4.)
3) Remove FL slider block assembly. (Refer to 3-12.)
4) Remove cam gear. (Refer to 3-13.)
5) Remove slider. (Refer to 3-16.)
6) Remove spring (power tension) ① from TG1 driving arm ②.
7) Remove TG1 driving arm ② by turning it in the arrow Ⓐ to Ⓑ direction.

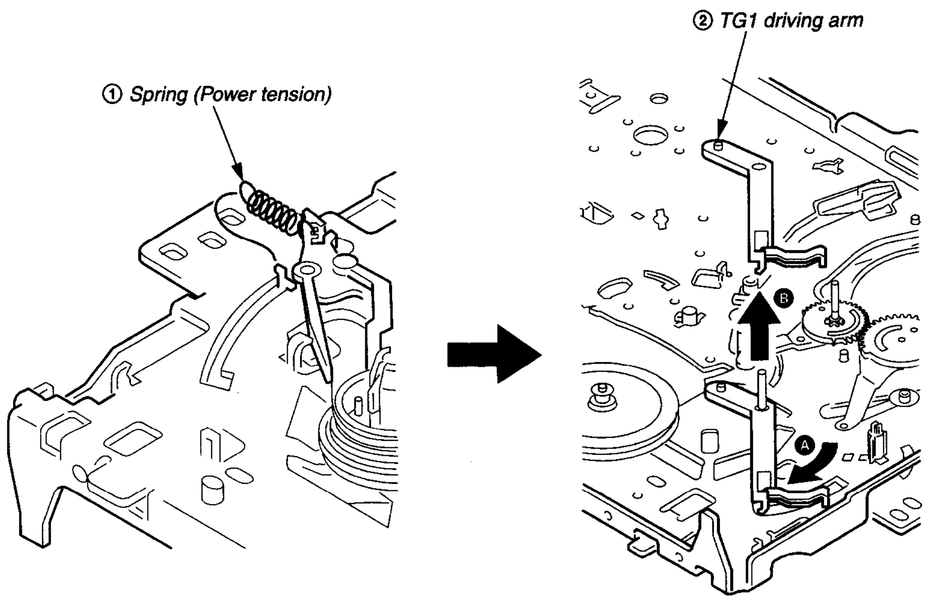

① Spring (Power tension)
② TG1 driving arm
Ⓑ
Ⓐ

Fig. 3-21

3-18. LOADING (T) AND LOADING (S) GEAR ASSEMBLIES

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove rubber belt. (Refer to 3-4.)
3) Remove FL slider block assembly. (Refer to 3-12.)
4) Remove cam gear. (Refer to 3-13.)
5) Remove slider. (Refer to 3-16.)
6) Remove loading (T) gear assembly ① and loading (S) gear assembly ② in the arrow direction.

[Note on Mounting]

- When attaching them, be sure to adjust the phase each other.

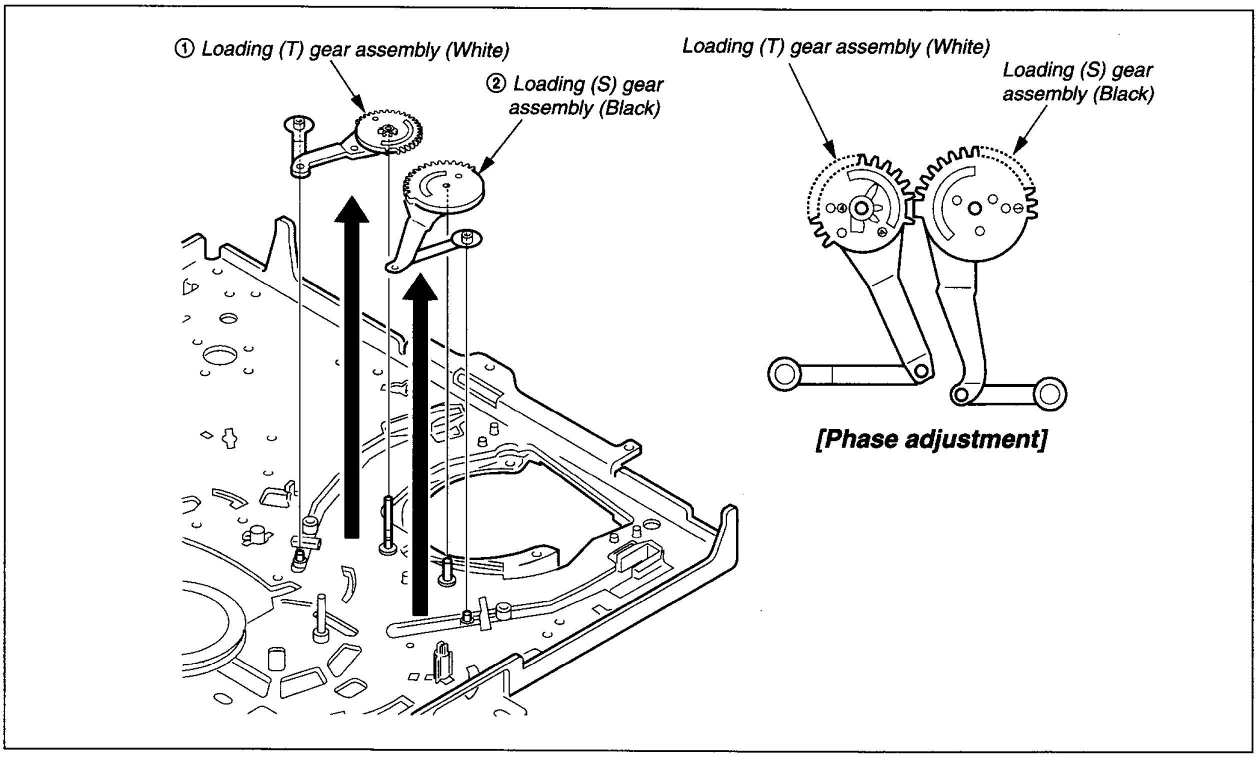

① Loading (T) gear assembly (White)
② Loading (S) gear assembly (Black)
Loading (T) gear assembly (White)
Loading (S) gear assembly (Black)
[Phase adjustment]

Fig. 3-22

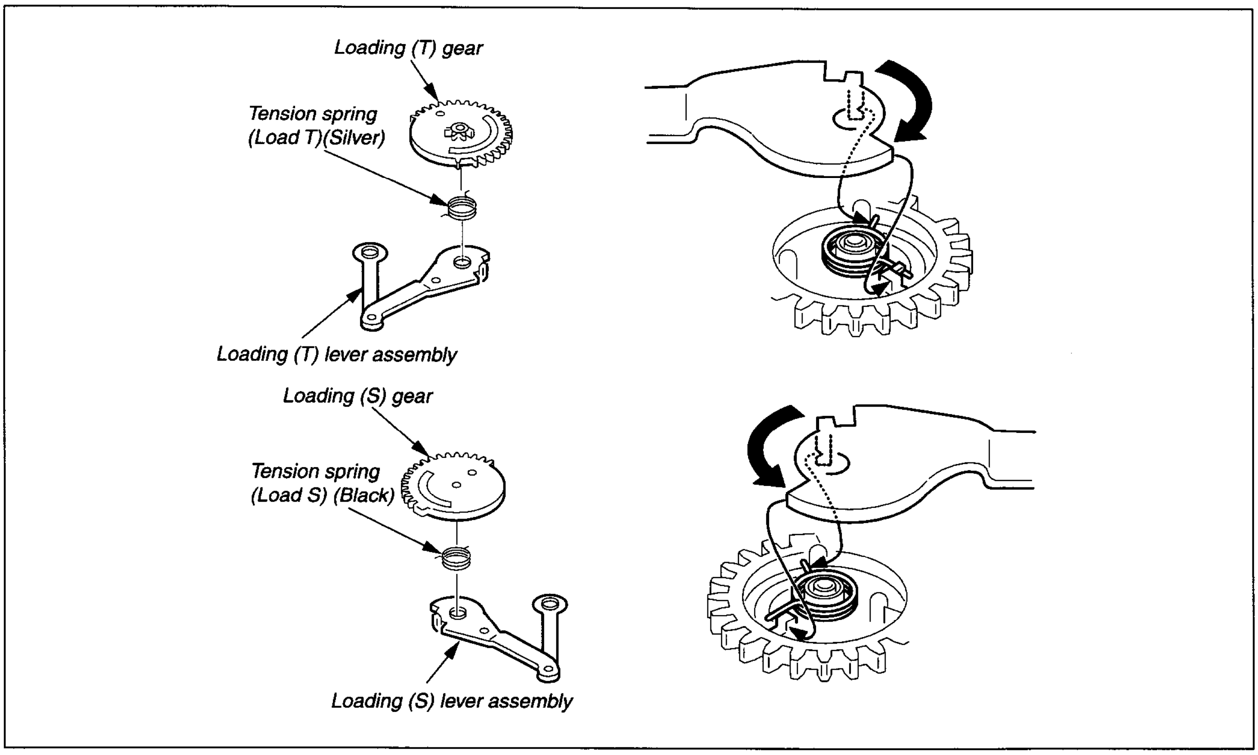

Loading (T) gear
Tension spring (Load T)(Silver)
Loading (T) lever assembly
Loading (S) gear
Tension spring (Load S) (Black)
Loading (S) lever assembly

Fig. 3-23

3-19. PULLEY GEAR ASSEMBLY, CLUTCH GEAR

1) Remove rubber belt. (Refer to 3-4.)
2) Remove stopper washer ①.
3) Remove pulley gear assembly ② with clutch gear ③.

[Note on Mounting]

- When attaching them, don't insert strongly.

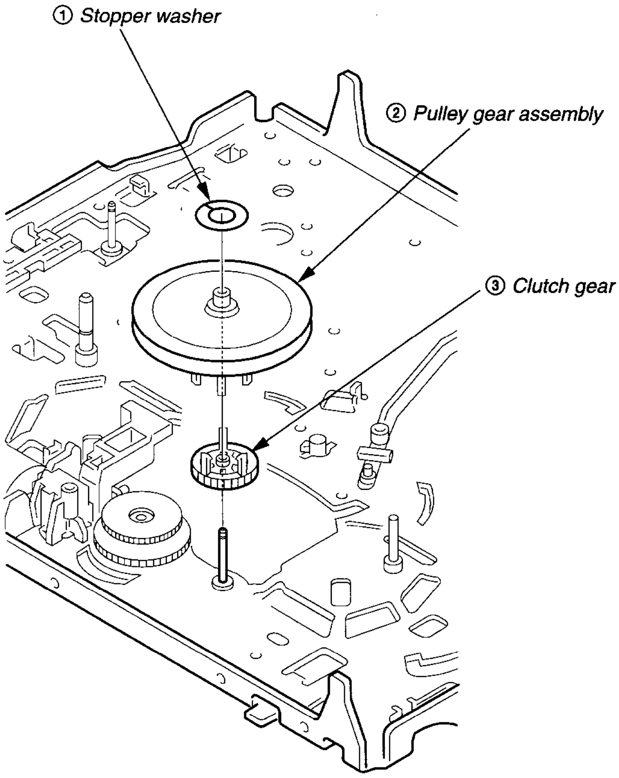

① Stopper washer
② Pulley gear assembly
③ Clutch gear

Fig. 3-24

3-20. REEL DIRECT ASSEMBLY

1) Remove rubber belt. (Refer to 3-5.)
2) Remove pulley gear assembly with clutch gear. (Refer to 3-19.)
3) Remove stopper washer ① and reel direct assembly ②.

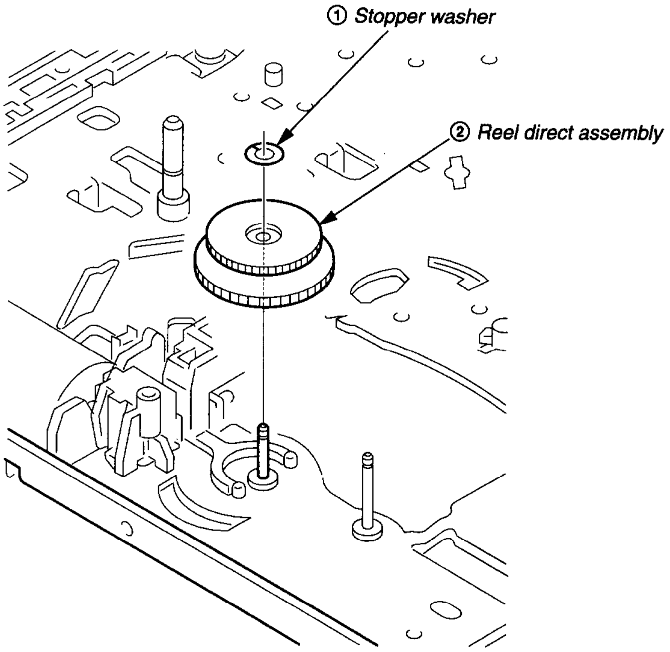

① Stopper washer
② Reel direct assembly

Fig. 3-25

3-21. CASSETTE GUIDE PLATE

1) Remove a screw (P 3 x 8) ① and remove cassette guide plate ②.

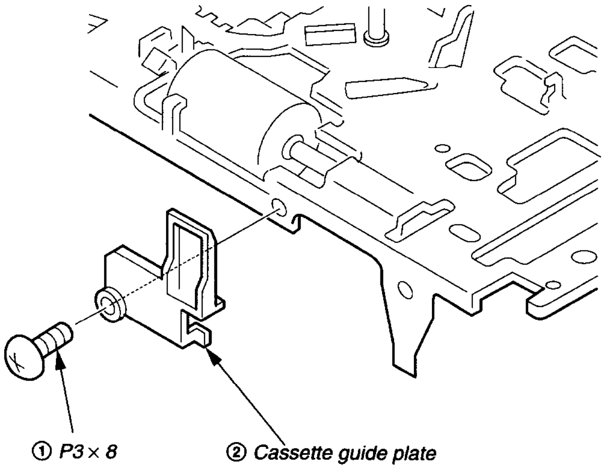

① P3 x 8
② Cassette guide plate

Fig. 3-26

3-23. DRUM BASE, HC ROLLER BLOCK ASSEMBLY

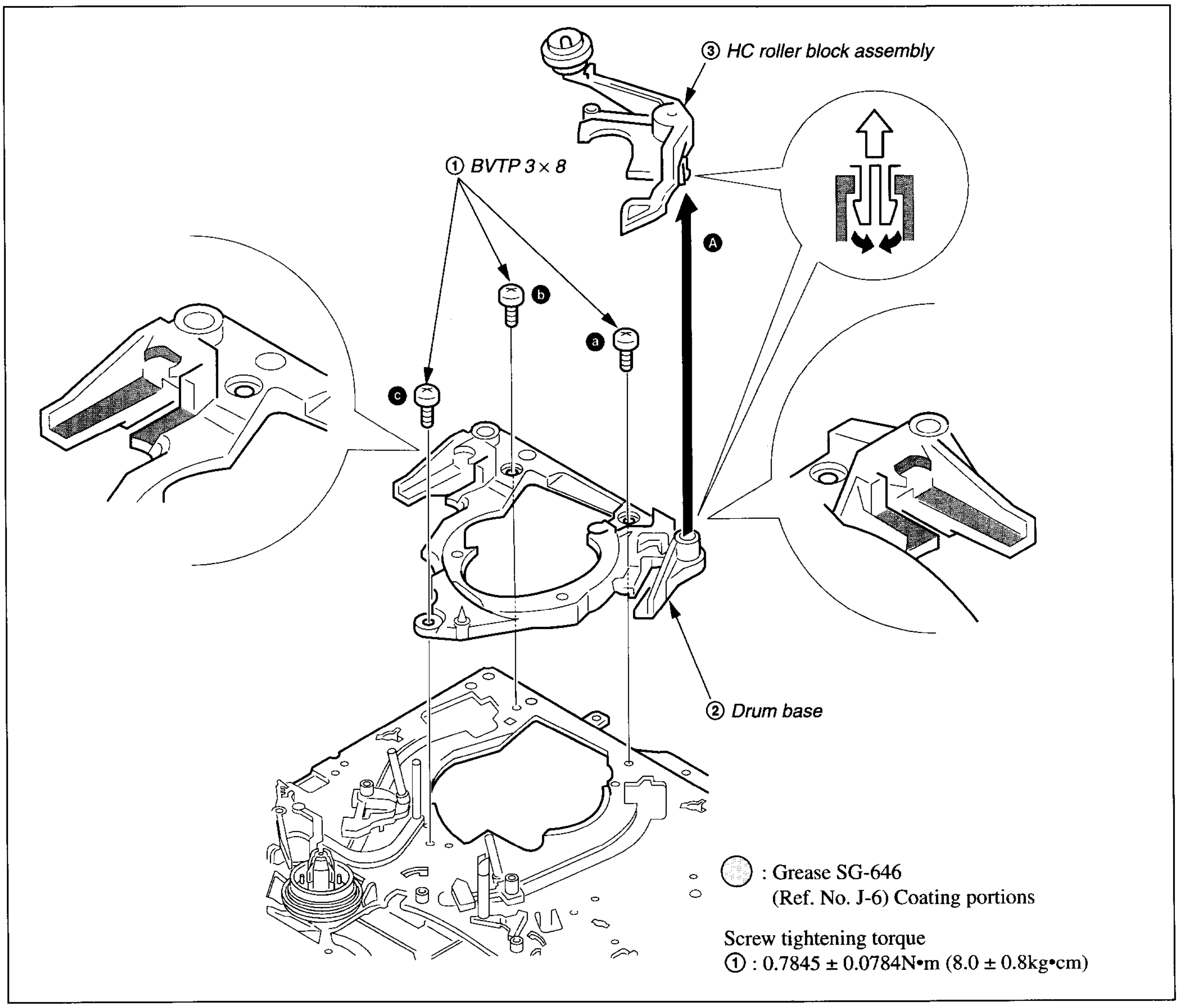
1) Remove the drum assembly. (Refer to 3-2.)
2) Remove screws BVTP 3 × 8 ①.
3) Remove drum base ②.
4) Pull out HC roller assembly ③ straight in the arrow Ⓐ direction.

[Note on Mounting]

- Before attaching drum base ②, confirm the specified locations are coated with grease SG-646 (Ref. No. J-6).
- Tightening screws ① in the order ⓐ to ⓑ to ⓒ.

[Adjustment after Mounting]

- 4-1. Tape path adjustment



◌ : Grease SG-646
(Ref. No. J-6) Coating portions

Screw tightening torque
① : 0.7845 ± 0.0784N•m (8.0 ± 0.8kg•cm)

Fig. 3-28

3-24. SHUTTLE (S) AND SHUTTLE (T) BLOCK ASSEMBLIES

1. Guide Roller Assemblies

1) Turn them counterclockwise, then they are out of place, also springs.

[Note on Mounting]

Don't touch the surface that contacts tape with bare hand.

[Adjustment after Mounting]

- 4-1. Tape path adjustment

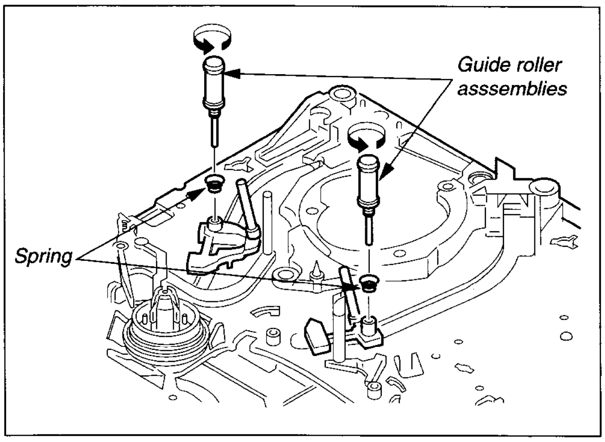

Guide roller asssemblies
Spring

Fig. 3-29

2. Shuttle (S) and Shuttle (T) Assemblies

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove the drum assembly. (Refer to 3-2.)
3) Remove rubber belt. (Refer to 3-4.)
4) Remove FL slider block assembly. (Refer to 3-12.)
5) Remove cam gear. (Refer to 3-13.)
6) Remove slider. (Refer to 3-16.)
7) Remove loading (T) gear assembly and loading (S) gear assembly. (Refer to 3-18.)
8) Remove drum base. (Refer to 3-23.)
9) Remove shuttle (S) or shuttle (T) assembly by slide them backward.

[Note on Mounting]

Don't touch the surface that contacts tape with bare hand.

[Adjustment after Mounting]

- 4-1. Tape path adjustment

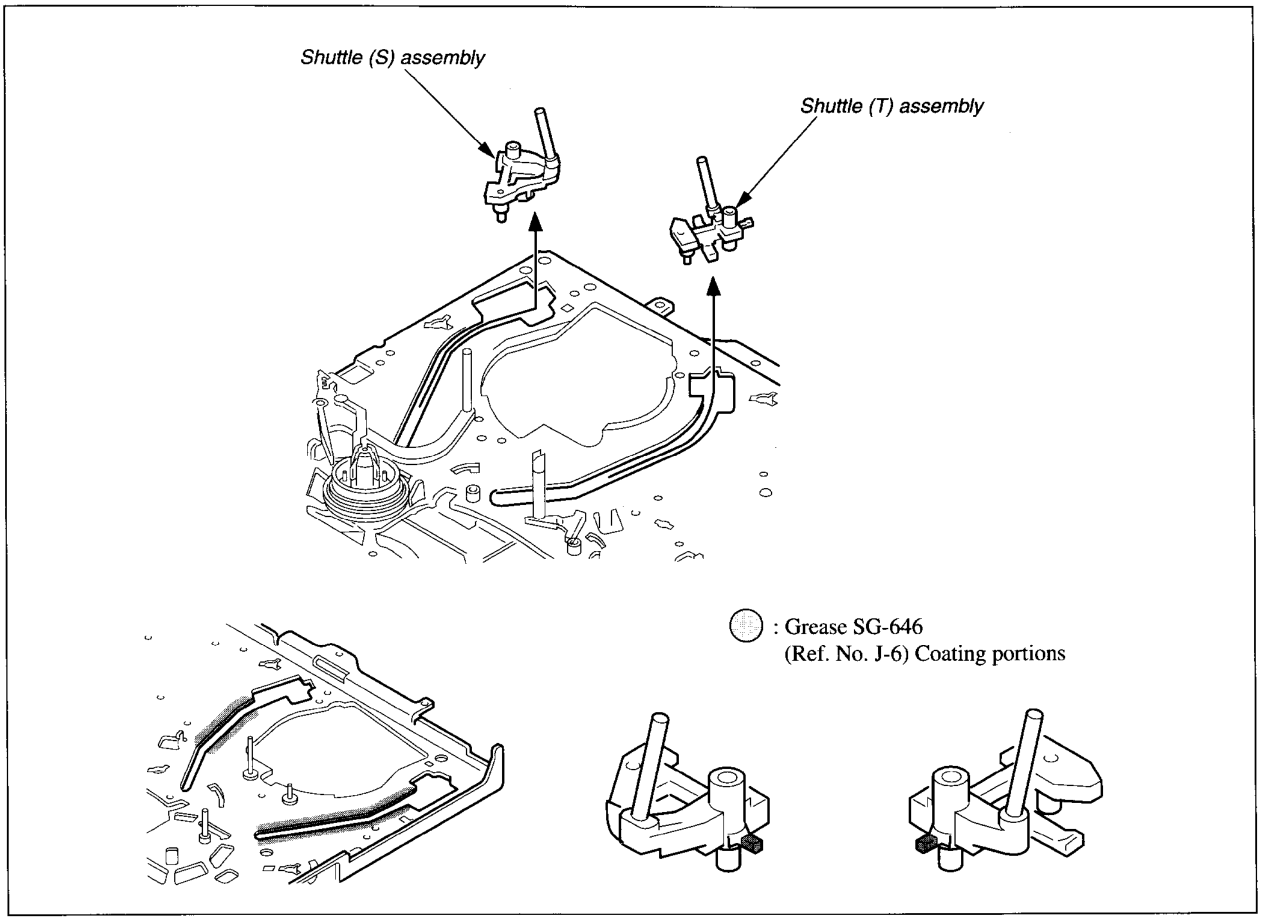

Shuttle (S) assembly
Shuttle (T) assembly
: Grease SG-646
(Ref. No. J-6) Coating portions

Fig. 3-30

3-25. TG1 ASSEMBLY, REEL (S) TABLE

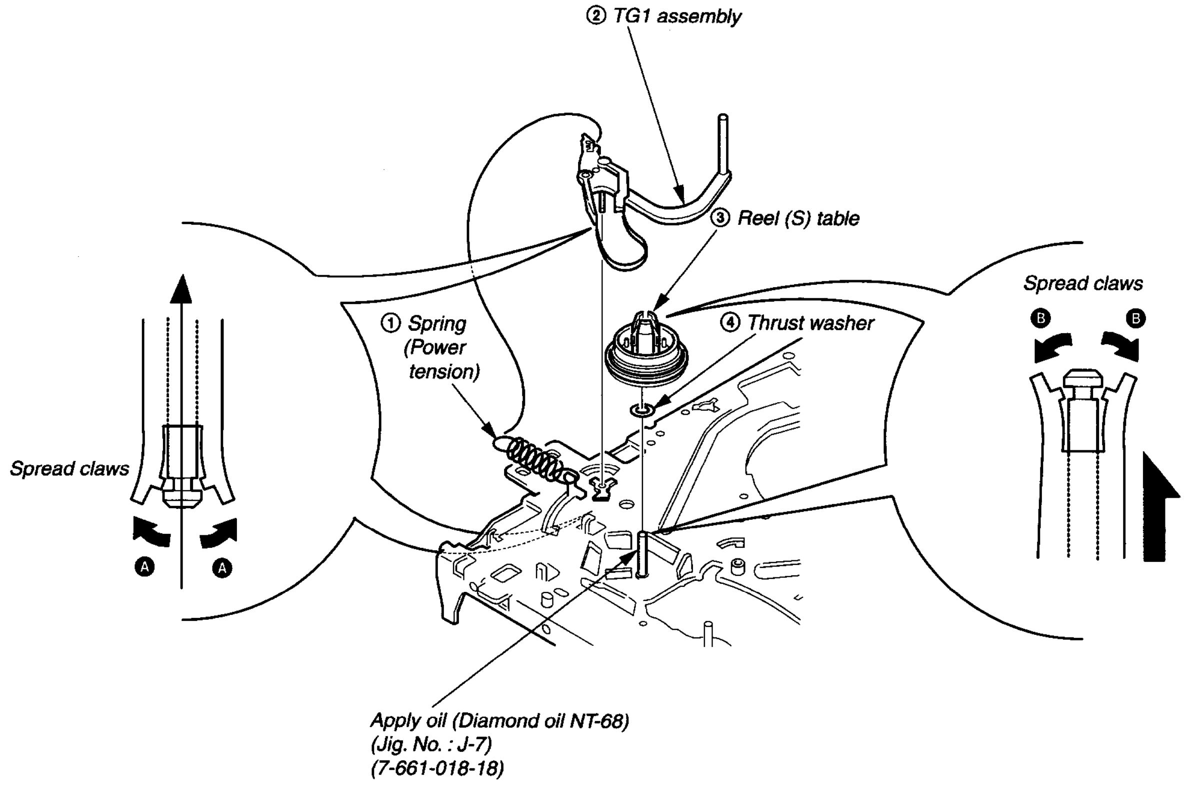
1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove spring (power tension) ① from TG1 driving arm.
3) While spreading claws on the bottom in the arrows Ⓐ direction, pull TG1 assembly ② out.
4) While spreading claws on the top in the arrows Ⓑ direction, pull reel (S) table ③ out.
5) Remove thrust washer ④.

[Note on Mounting]

Don't touch the surface that contacts tape and the braking surface of TG1 assembly with bare hand.

[Adjustment after Mounting]

- 4-1. Tape path adjustment



② TG1 assembly
③ Reel (S) table
① Spring (Power tension)
④ Thrust washer
Spread claws
Ⓐ
Ⓐ
Spread claws
Ⓑ
Ⓑ
Apply oil (Diamond oil NT-68) (Jig. No. : J-7) (7-661-018-18)

Fig. 3-31

3-26. TG1 FULCRUM BOSS

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove TG1 assembly. (Refer to 3-25.)
3) Turn TG1 fulcrum boss counterclockwise and pull it out.

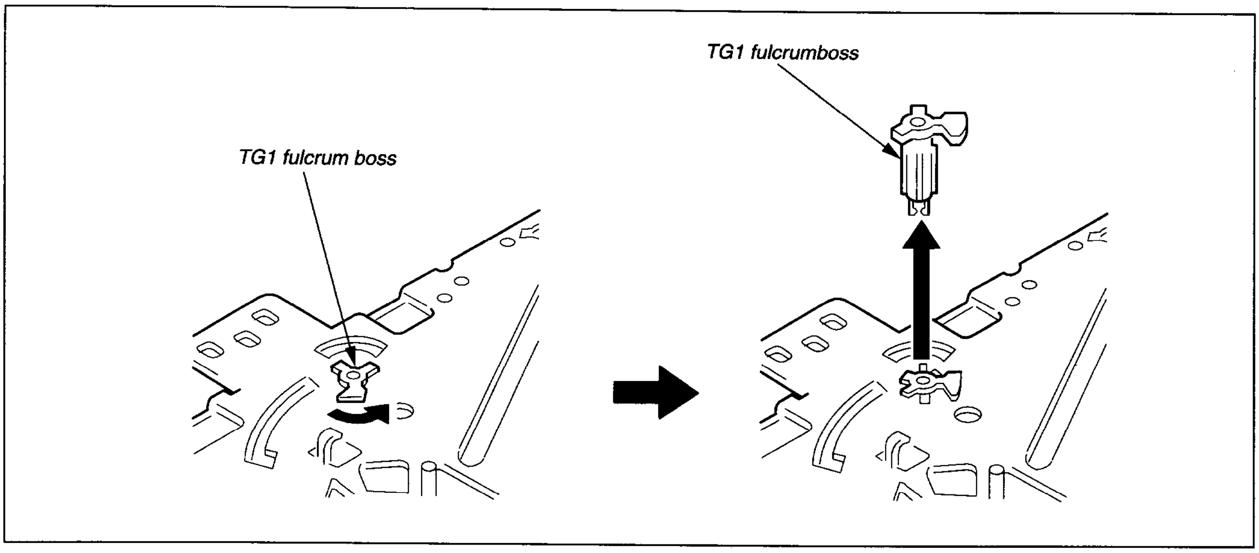

TG1 fulcrumboss
TG1 fulcrum boss

Fig. 3-32

3-27. LUMINOUS PLATE

1) Remove main (T) brake assembly. (Refer to 3-9.)
2) Turn luminous plate clockwise while raising a portion Ⓐ slightly and pull out it.

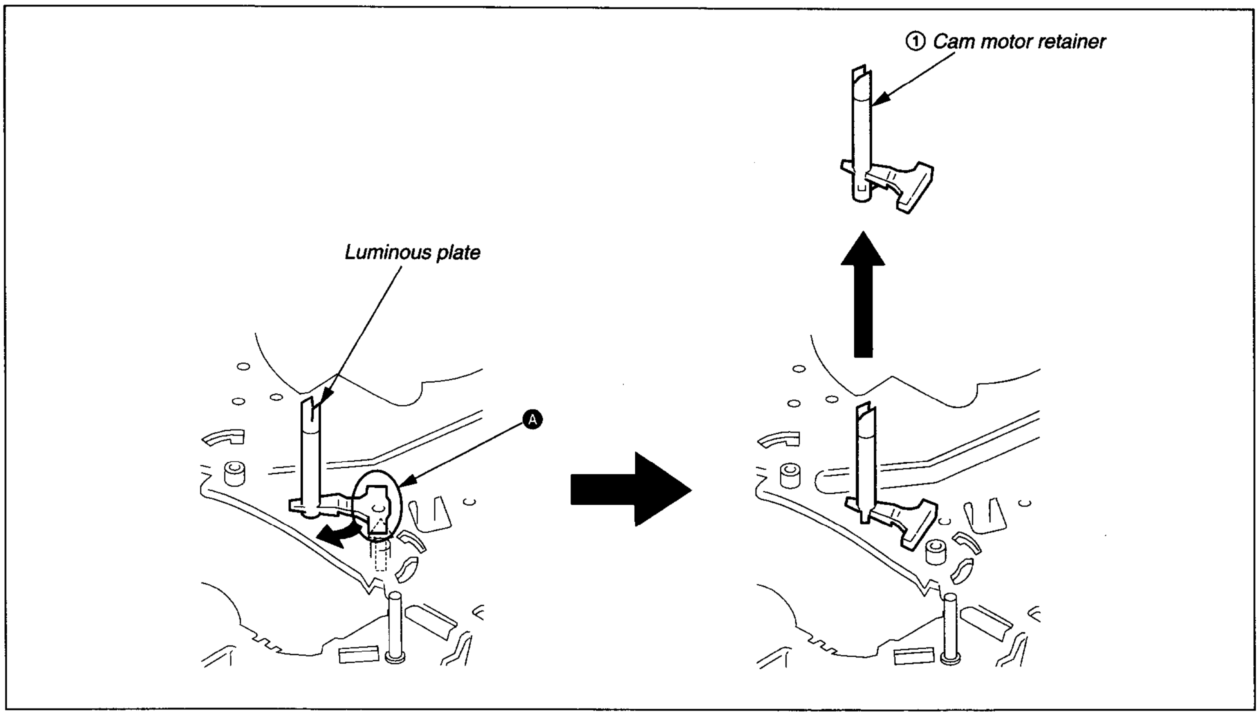

① Cam motor retainer
Luminous plate
A

Fig. 3-33

4. ADJUSTMENT

4-1. TAPE PATH ADJUSTMENT

The "Tape path" refers to the route of the tape from the supply reel disk to the take-up reel disc via the video heads.

Each component part of the tape transport system particularly the surface of parts which make direct contact with the tape must always be kept clean, free of dust, oil, scratches and so forth.

The tape path system is factory pre-adjusted, when parts of the tape transport system are replaced, be sure to make the required adjustments as precisely as possible in order to ensure stable tape transport.

4-1-1. TENSION REGULATOR (TG1) POSITION/ TENSION ADJUSTMENT (Fig. 4-1)

Purpose: stabilizes contact of the video head and the tape to maintain the tension of the tape so that it feeds at a constant level.

• Position adjustment

Mode	Threading is completed without a cassette loaded (Playback)
Adjustment locations	Eccentric pin of TG1 band assembly

[Adjustment Method]

1) Allow the unit to go through the threading procedure without a cassette loaded.
2) Set the unit to play back, then turn the eccentric pin so that the tip of tension arm goes to the left side line carved on the mechanical chassis. (Fig. A)
3) After adjustment, go through the loading procedure once more without a cassette loaded, then check the position of the tension arm.

• Tension adjustment

Mode	Playback (SP)
Measuring instrument/tool	Torque cassette VHT-103S (Ref. No. J-1)
Adjustment locations	Position for hooking the tension spring
Specified value	5.05 to 6.52 mN•m (51.5 to 66.5g•cm) (without TC assembly) 3.78 to 5.10 mN•m (38.5 to 52.0g•cm) (with TC assembly)

[Adjustment Method]

1) Playback the torque cassette.
2) Check that the center value deviation reading on the torque cassette meets with the standards.
3) When the reading is higher than the standards : Move the spring toward direction Ⓐ.
   When the reading is less than the standards : Move the spring toward direction Ⓑ.

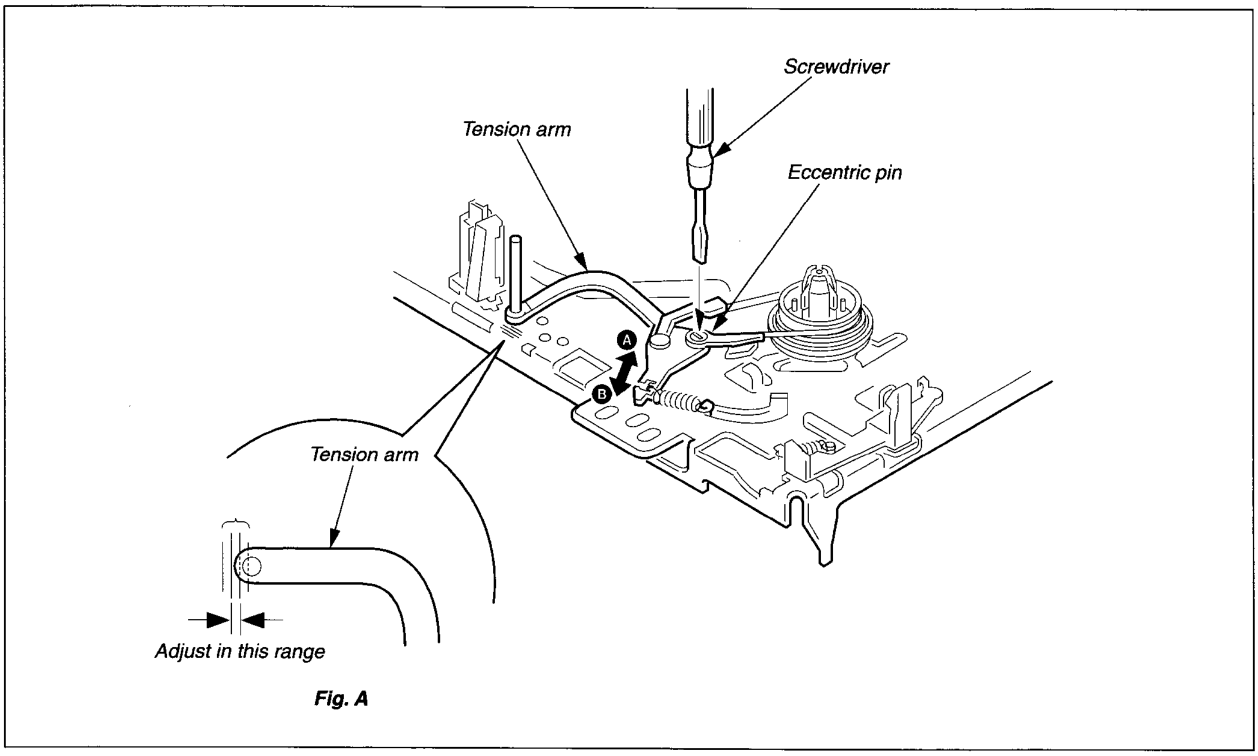


Fig. 4-1

4-1-2. CHECKING THE TENSION AND TORQUE

Purpose : To check that the tension, torque and compression force of the tape take-up section and mobile sections to ensure smooth tape run and achieve standard VTR performance.
If the tape transport is not smooth or problems occur in relation to the tape transport speed, perform the following check.

Mode	Each operation mode
Measuring instrument	Torque cassette VHT-103S, VHT-404S

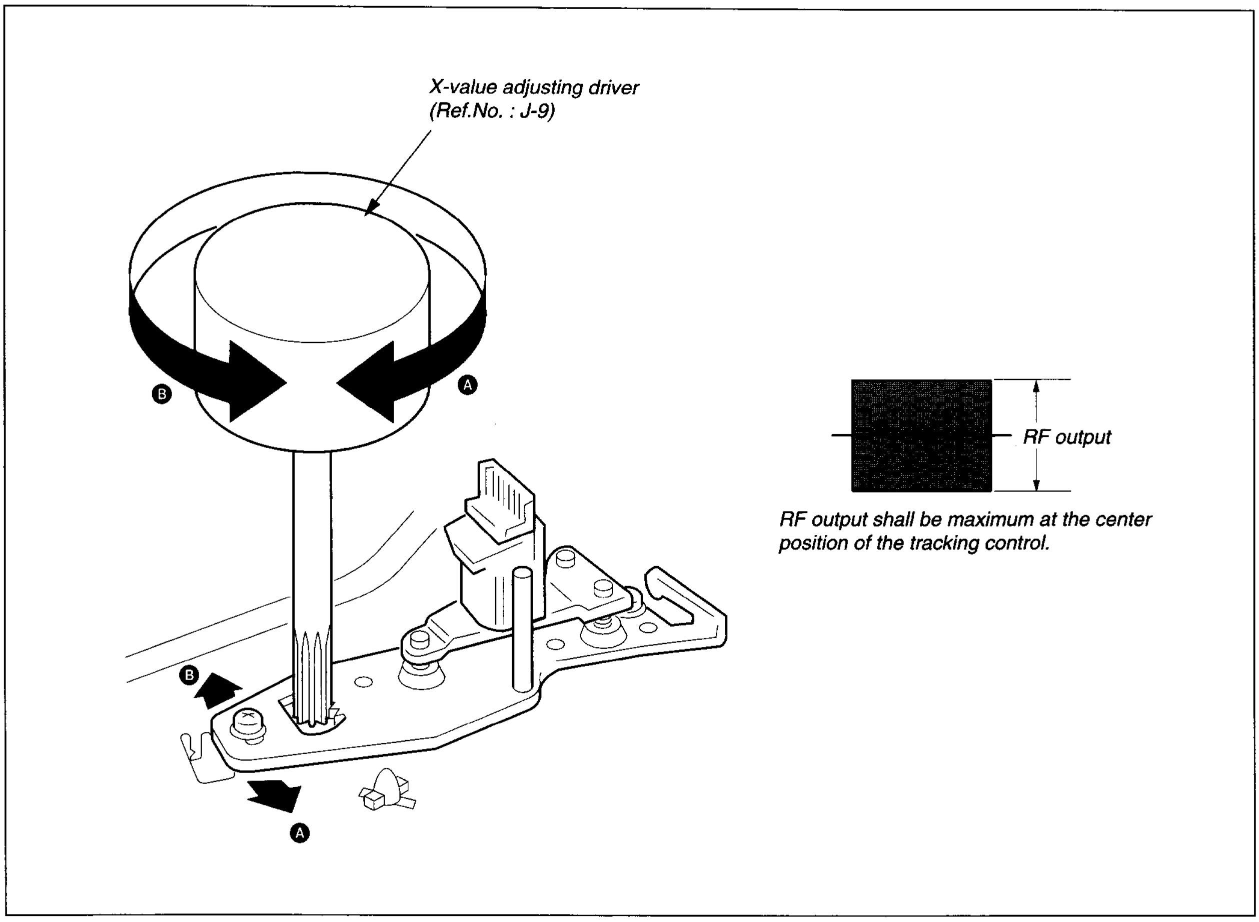
Item	VTR operation mode	Reel to be measured	Measurement value
Review torque	Review	S reel	12.7 to 19.6 mN•m (130 to 200 g•cm)
Take-up torque	Playback	T reel	4.41 to 10.8 mN•m (45 to 110g•cm)
Back tension torque	Playback	S reel	See section 4-1-1.

4-1-3. X-VALUE ADJUSTMENT (Using the tape having the version No.)

Purpose: To obtain compatibility with other VCRs.

Precaution: Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape: KRV-52NE (NTSC)/ 52PL(PAL)
Measuring instrument	Oscilloscope TIME/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH1: Connector PB RF pin for RF PC board check CH2: Connector RF SWP pin for RF PC board check
Adjustment locations	ACE base assembly



RF output shall be maximum at the center position of the tracking control.

Fig. 4-2

[Adjustment Method]

Set the tracking control at the center position. For the VCRs equipped with standard gap video heads, set the ACE head position with X-value adjusting driver where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the ACE head position with X-value adjusting driver both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.

* TYPE OF DRUM

DZH-68D
DZH-71D
DZH-77A
DZH-78A
DZH-78B
DZH-89A
DZH-90A
DZH-91A
DZH-92A

1. Adjusting X-value
(Using the tape having the version No.)

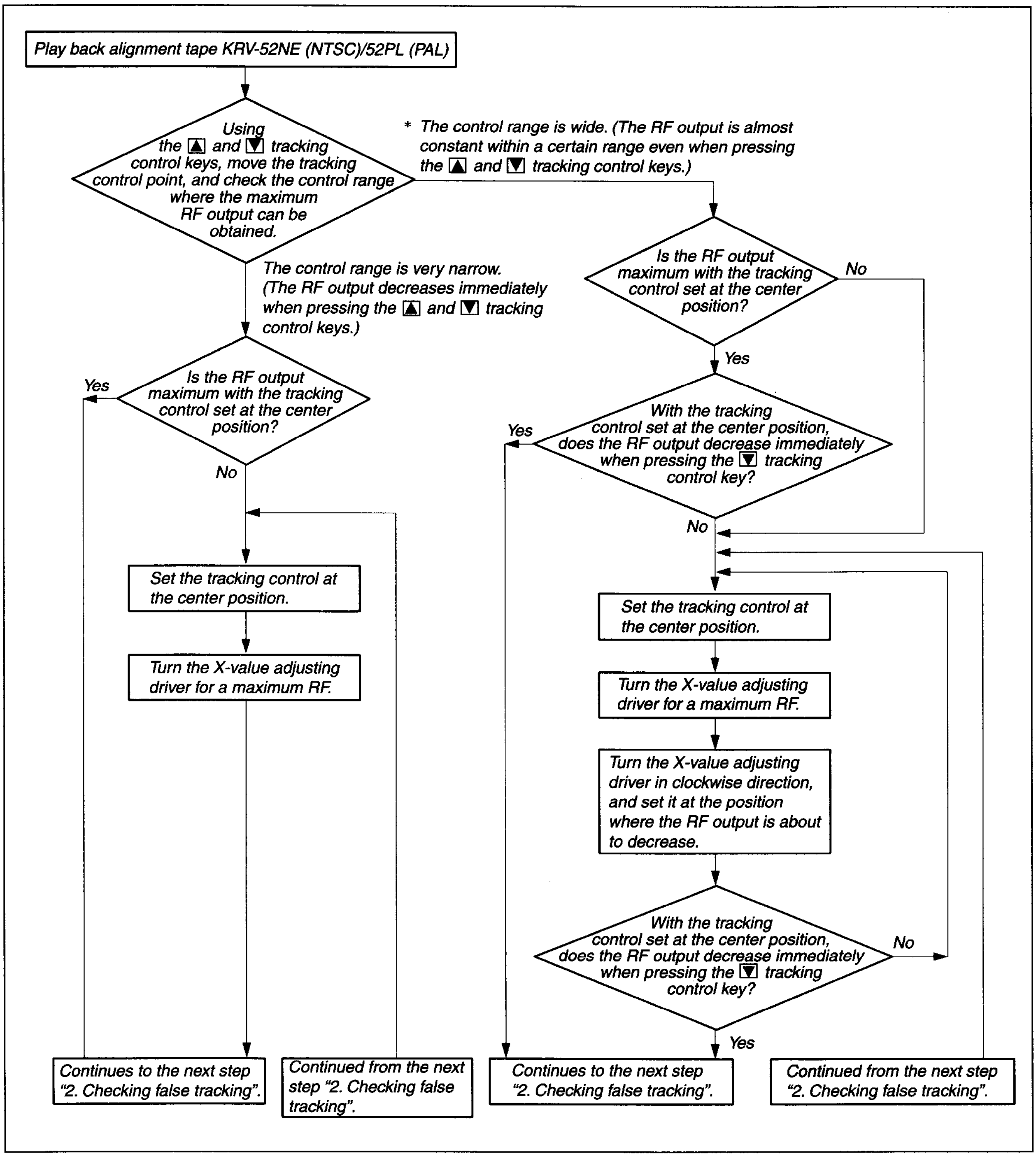
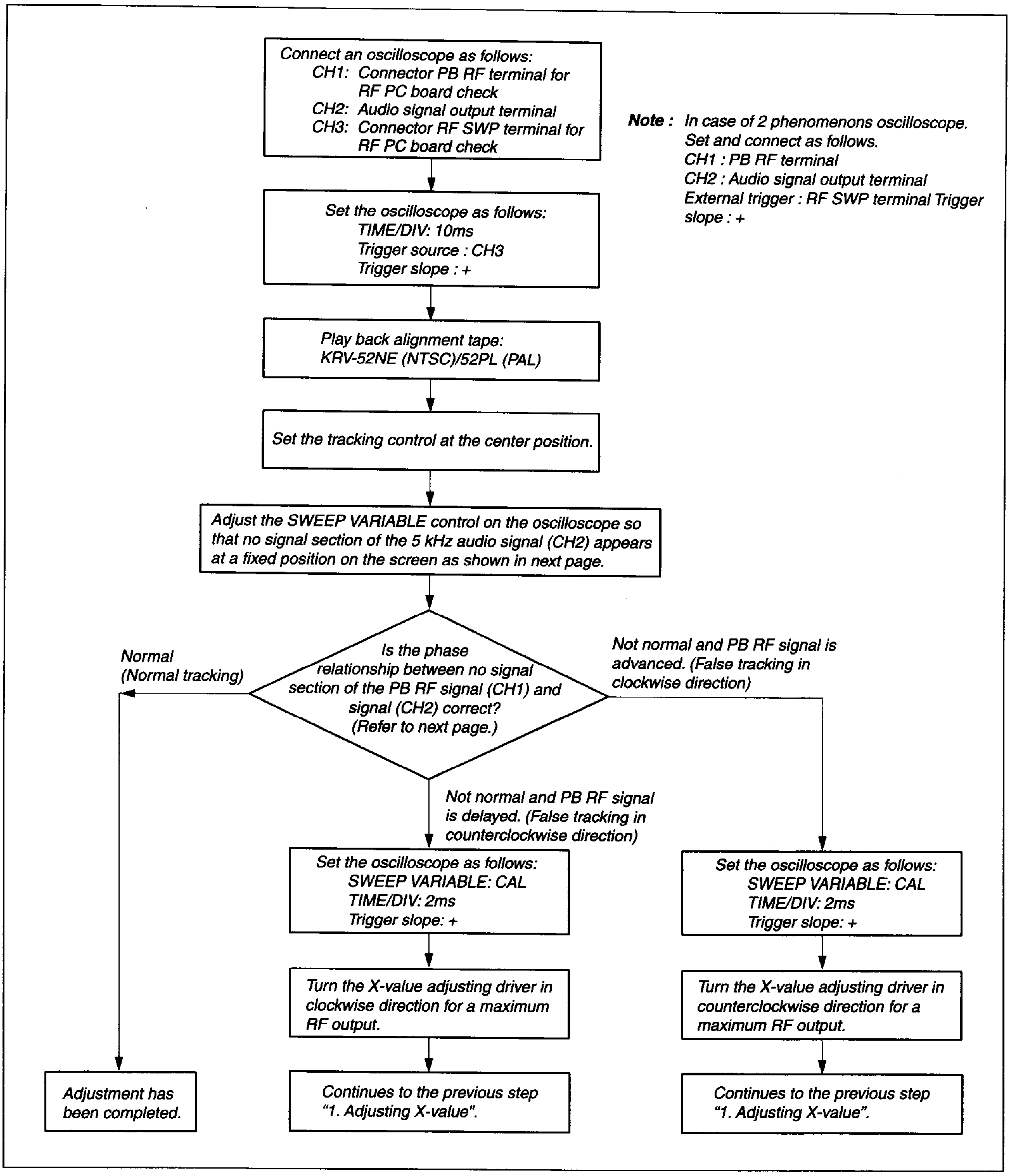

Play back alignment tape KRV-52NE (NTSC)/52PL (PAL)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
* The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF.
Continues to the next step "2. Checking false tracking".
Continued from the next step "2. Checking false tracking".
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF.
Turn the X-value adjusting driver in clockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Continues to the next step "2. Checking false tracking".
Continued from the next step "2. Checking false tracking".

Table. 4-1

2. Checking false tracking (Using the tape having the version No.)


Connect an oscilloscope as follows:
CH1: Connector PB RF terminal for RF PC board check
CH2: Audio signal output terminal
CH3: Connector RF SWP terminal for RF PC board check
Set the oscilloscope as follows:
TIME/DIV: 10ms
Trigger source : CH3
Trigger slope : +
Play back alignment tape:
KRV-52NE (NTSC)/52PL (PAL)
Set the tracking control at the center position.
Adjust the SWEEP VARIABLE control on the oscilloscope so that no signal section of the 5 kHz audio signal (CH2) appears at a fixed position on the screen as shown in next page.
Is the phase relationship between no signal section of the PB RF signal (CH1) and signal (CH2) correct? (Refer to next page.)
Normal (Normal tracking)
Not normal and PB RF signal is advanced. (False tracking in clockwise direction)
Not normal and PB RF signal is delayed. (False tracking in counterclockwise direction)
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Turn the X-value adjusting driver in clockwise direction for a maximum RF output.
Turn the X-value adjusting driver in counterclockwise direction for a maximum RF output.
Adjustment has been completed.
Continues to the previous step "1. Adjusting X-value".
Continues to the previous step "1. Adjusting X-value".

Note : In case of 2 phenomenons oscilloscope.
Set and connect as follows.
CH1 : PB RF terminal
CH2 : Audio signal output terminal
External trigger : RF SWP terminal Trigger slope : +

Table. 4-2

Using the tape having the version No.

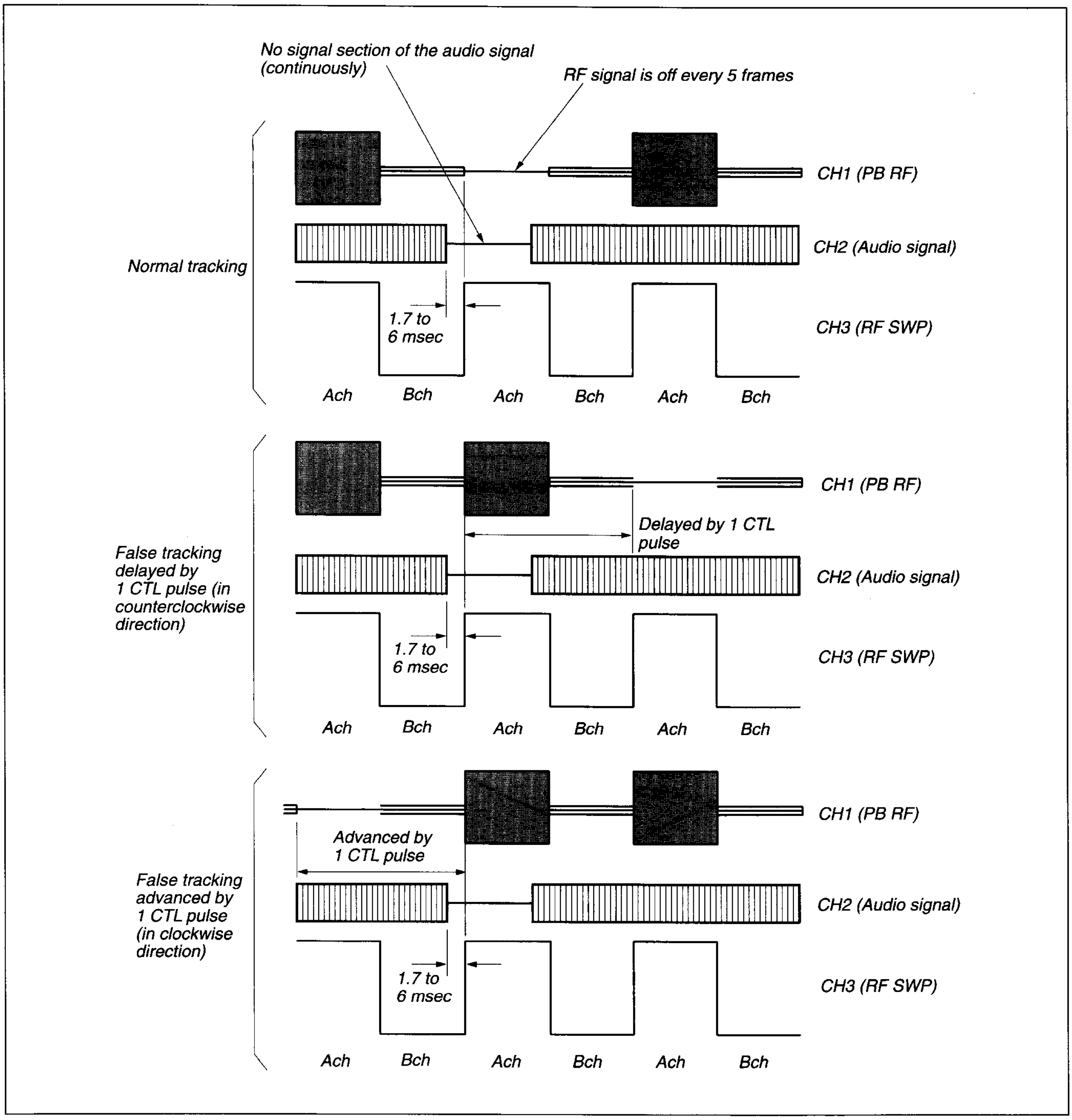

No signal section of the audio signal (continuously)
RF signal is off every 5 frames
Normal tracking
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking delayed by 1 CTL pulse (in counterclockwise direction)
Delayed by 1 CTL pulse
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking advanced by 1 CTL pulse (in clockwise direction)
Advanced by 1 CTL pulse
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

Table. 4-3

[Adjustment Method (*For the VCRs Equipped with Narrow Gap Video Heads)]

Set the tracking control at the center position. Set the ACE head position with X-value adjusting driver both where a maximum RF output is obtained and where the RF output decreases immediately when the ▲ tracking control key is pressed.

* TYPE OF DRUM
DZH-98A

1. Adjusting X-value (Using the tape having the version No.)

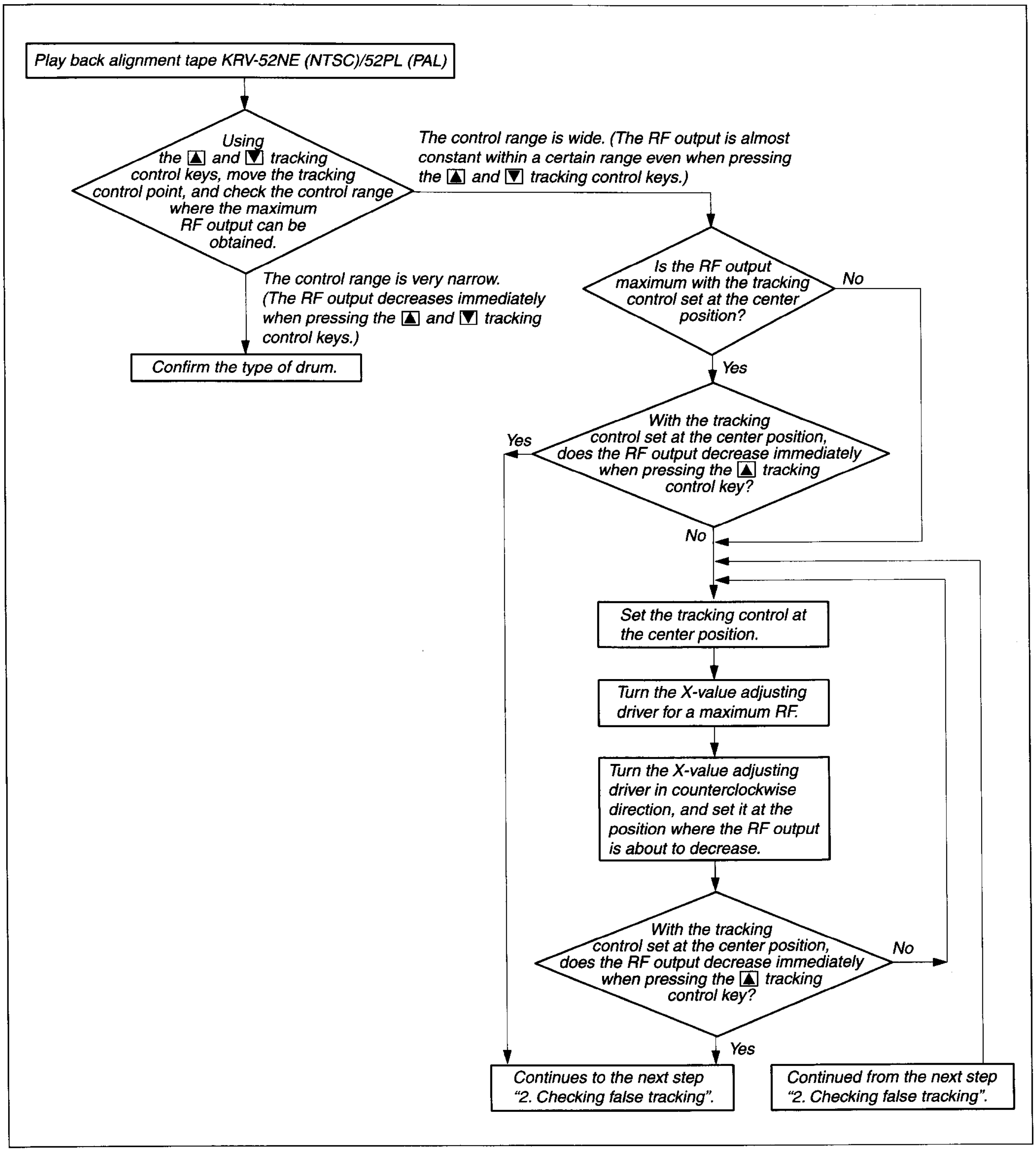
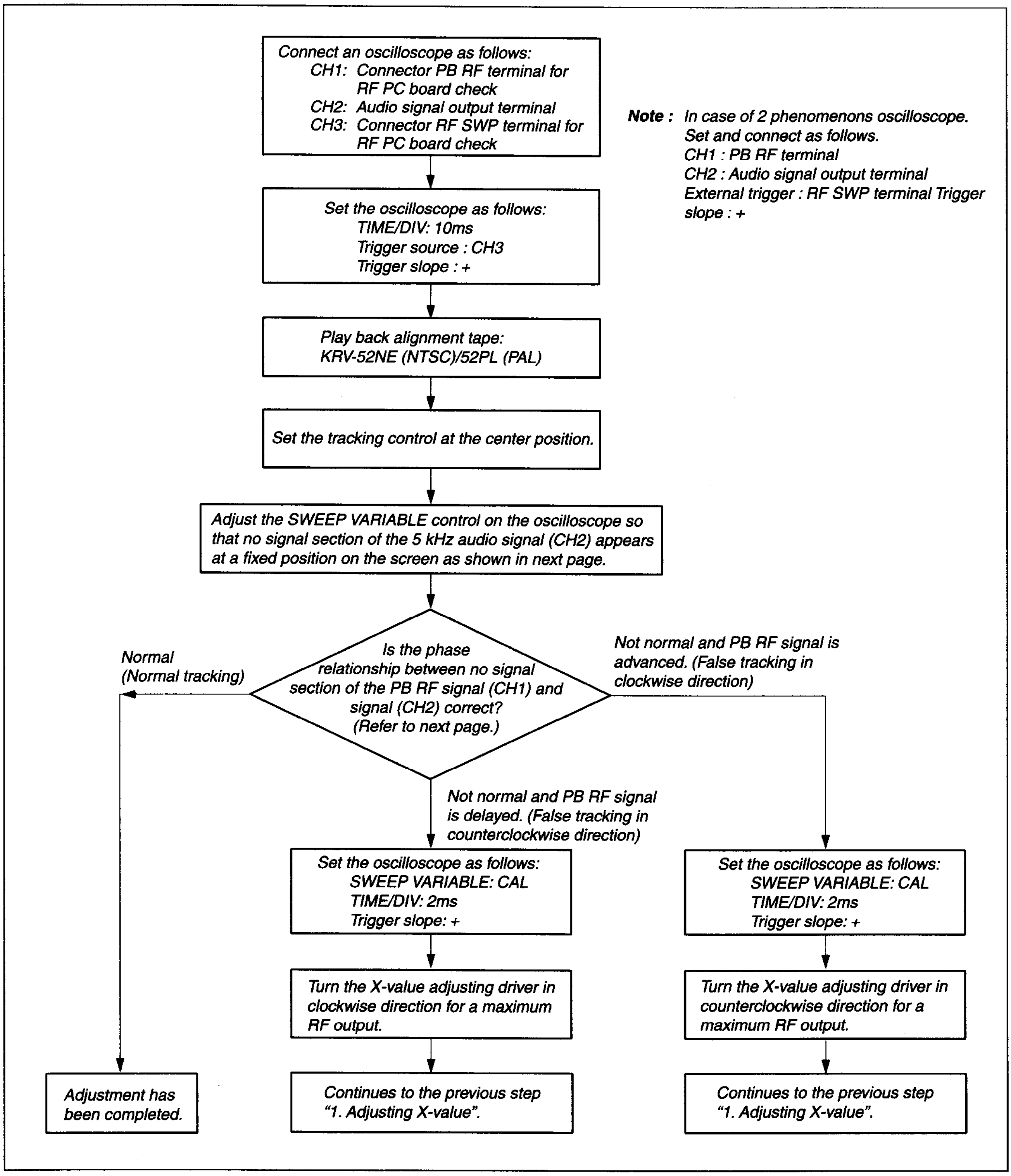

Play back alignment tape KRV-52NE (NTSC)/52PL (PAL)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Confirm the type of drum.
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▲ tracking control key?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF.
Turn the X-value adjusting driver in counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▲ tracking control key?
No
Yes
Continues to the next step "2. Checking false tracking".
Continued from the next step "2. Checking false tracking".

Table. 4-4

2. Checking false tracking (Using the tape having the version No.)


Connect an oscilloscope as follows: CH1: Connector PB RF terminal for RF PC board check CH2: Audio signal output terminal CH3: Connector RF SWP terminal for RF PC board check
Set the oscilloscope as follows: TIME/DIV: 10ms Trigger source : CH3 Trigger slope : +
Play back alignment tape: KRV-52NE (NTSC)/52PL (PAL)
Set the tracking control at the center position.
Adjust the SWEEP VARIABLE control on the oscilloscope so that no signal section of the 5 kHz audio signal (CH2) appears at a fixed position on the screen as shown in next page.
Is the phase relationship between no signal section of the PB RF signal (CH1) and signal (CH2) correct? (Refer to next page.)
Normal (Normal tracking)
Not normal and PB RF signal is advanced. (False tracking in clockwise direction)
Not normal and PB RF signal is delayed. (False tracking in counterclockwise direction)
Set the oscilloscope as follows: SWEEP VARIABLE: CAL TIME/DIV: 2ms Trigger slope: +
Turn the X-value adjusting driver in clockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Set the oscilloscope as follows: SWEEP VARIABLE: CAL TIME/DIV: 2ms Trigger slope: +
Turn the X-value adjusting driver in counterclockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Adjustment has been completed.

Note : *In case of 2 phenomenons oscilloscope.*
Set and connect as follows.
CH1 : PB RF terminal
CH2 : Audio signal output terminal
External trigger : RF SWP terminal Trigger slope : +

Table. 4-5

Using the tape having the version No.

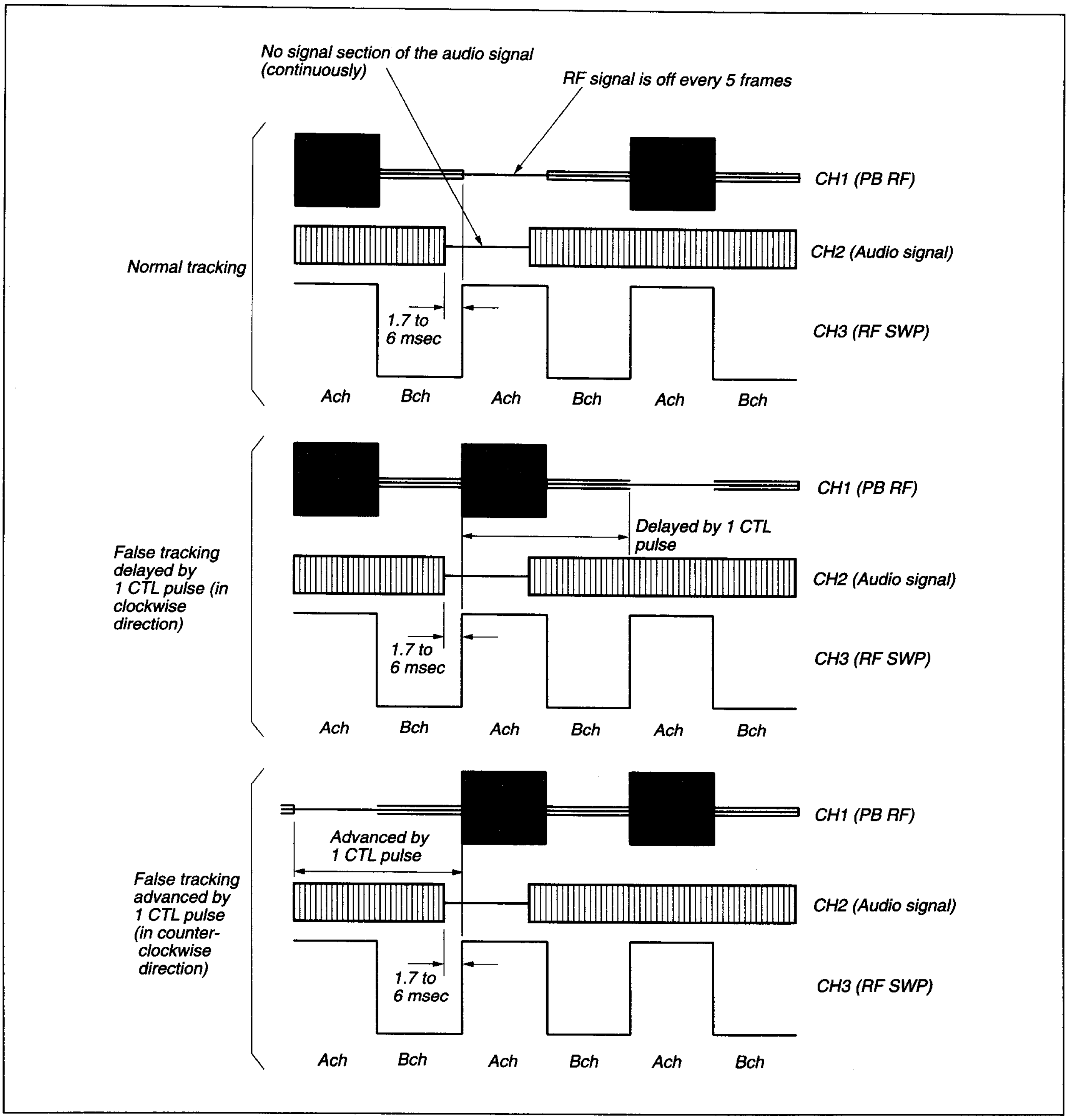

No signal section of the audio signal (continuously)
RF signal is off every 5 frames
Normal tracking
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking delayed by 1 CTL pulse (in clockwise direction)
Delayed by 1 CTL pulse
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking advanced by 1 CTL pulse (in counter-clockwise direction)
Advanced by 1 CTL pulse
CH1 (PB RF)
CH2 (Audio signal)
CH3 (RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

Table. 4-6

3-22. CAM MOTOR ASSEMBLY, LIMITER SELECTION ARM

1) Remove FL complete assembly. (Refer to 3-1.)
2) Remove rubber belt. (Refer to 3-4.)
3) Remove FL slider block assembly. (Refer to 3-12.)
4) Remove worm wheel. (Refer to 3-13.)
5) Remove pulley gear assembly with clutch gear. (Refer to 3-19.)
6) Remove and reel direct assembly. (Refer to 3-20.)
7) Remove cam motor retainer ① in the arrow Ⓑ while pushing its claw in the arrow Ⓐ direction.
8) Then cam motor assembly ② is out of place.
9) Remove the boss of limiter selection arm ③ from the hole on the mechanical chassis by pushing in the arrow Ⓒ direction and push it in the arrow Ⓓ direction and remove it in the arrow Ⓔ direction.

[Note on Mounting]

- Before attaching cam motor assembly ②, confirm the specified locations are coated with grease SG-646 (Ref. No. J-6).

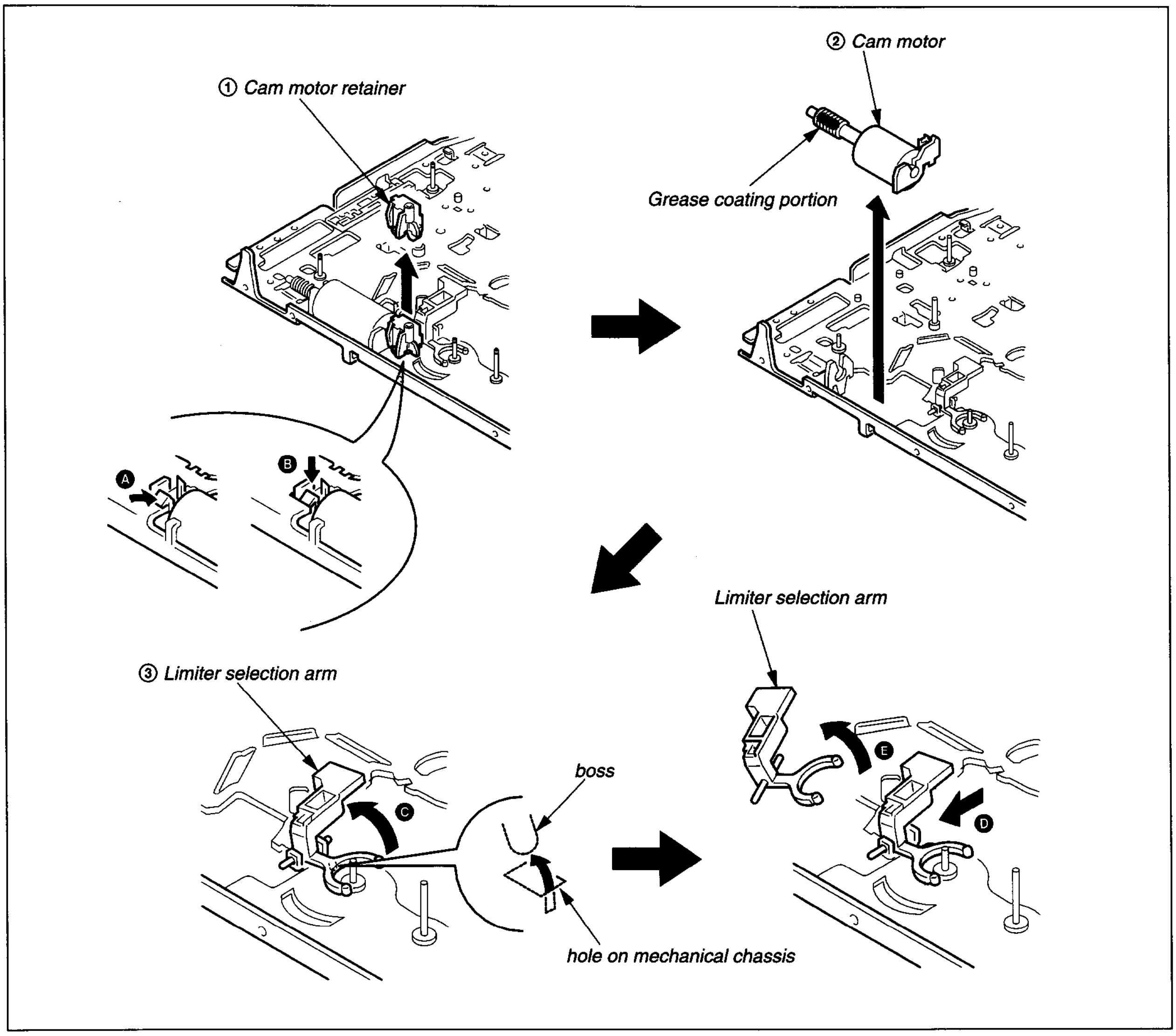

② Cam motor
① Cam motor retainer
Grease coating portion
Ⓐ
Ⓑ
Limiter selection arm
③ Limiter selection arm
boss
Ⓒ
Ⓔ
Ⓓ
hole on mechanical chassis

Fig. 3-27

Reference

• X-VALUE ADJUSTMENT
(Using KRV-52NE having no version No.)

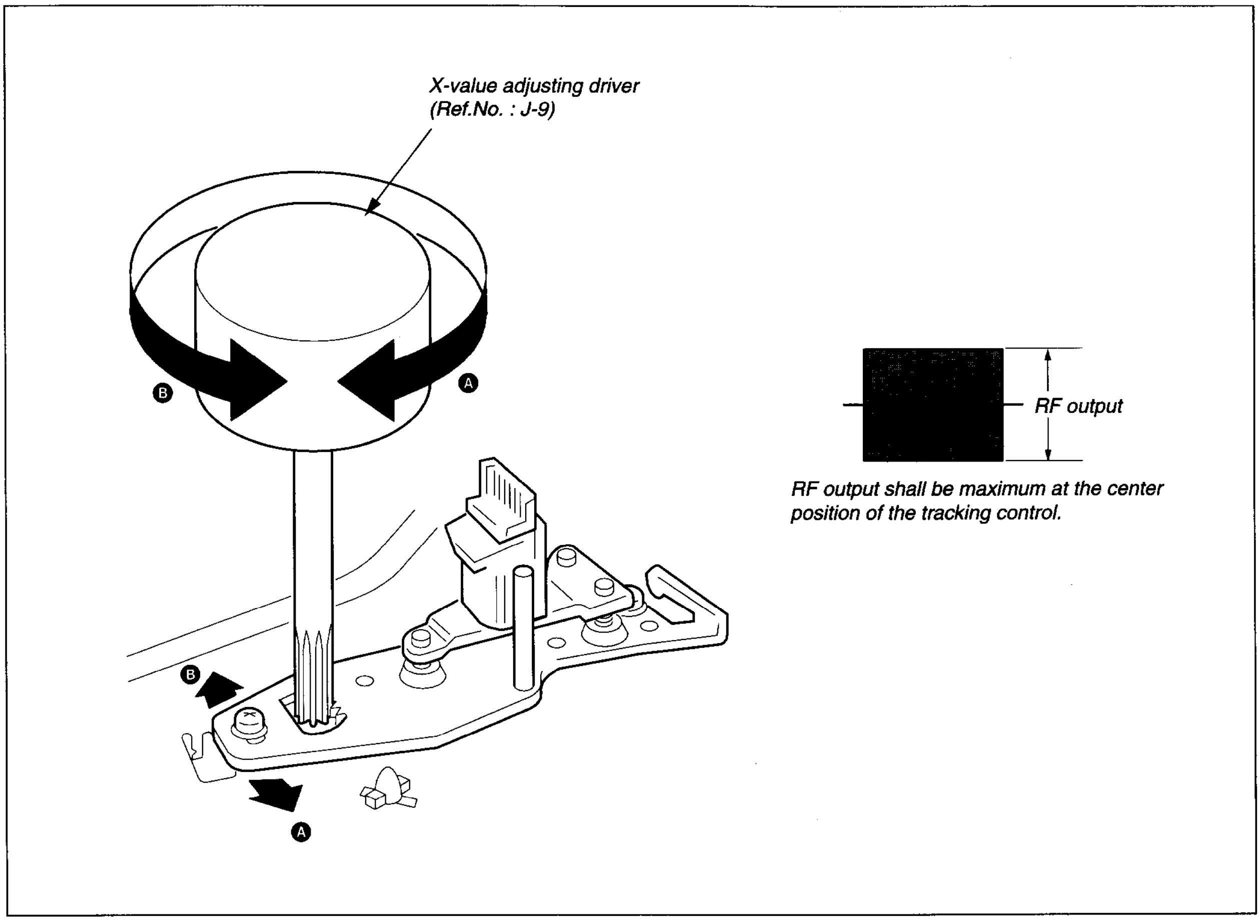
Purpose : To obtain compatibility with other VCRs.

Precaution : Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys. Press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape: KRV-52NE (For NTSC having no version No.)
Measuring instrument	Oscilloscope TIME/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH1: Connector PB RF pin for RF PC board check CH2 : Connector RF SWP pin for RF PC board check
Adjustment locations	ACE base assembly

[Adjustment Method]

Set the tracking control at the center position. For the VCRs equipped with standard gap video heads, set the X-value adjustment screw where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the X-value adjustment screw both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.



RF output shall be maximum at the center position of the tracking control.

Fig. 4-3

X-VALUE ADJUSTMENT
(Using the tape having no version No.)

* TYPE OF DRUM
DZH-68D
DZH-71D
DZH-77A
DZH-78A
DZH-78B
DZH-89A
DZH-90A
DZH-91A
DZH-92A

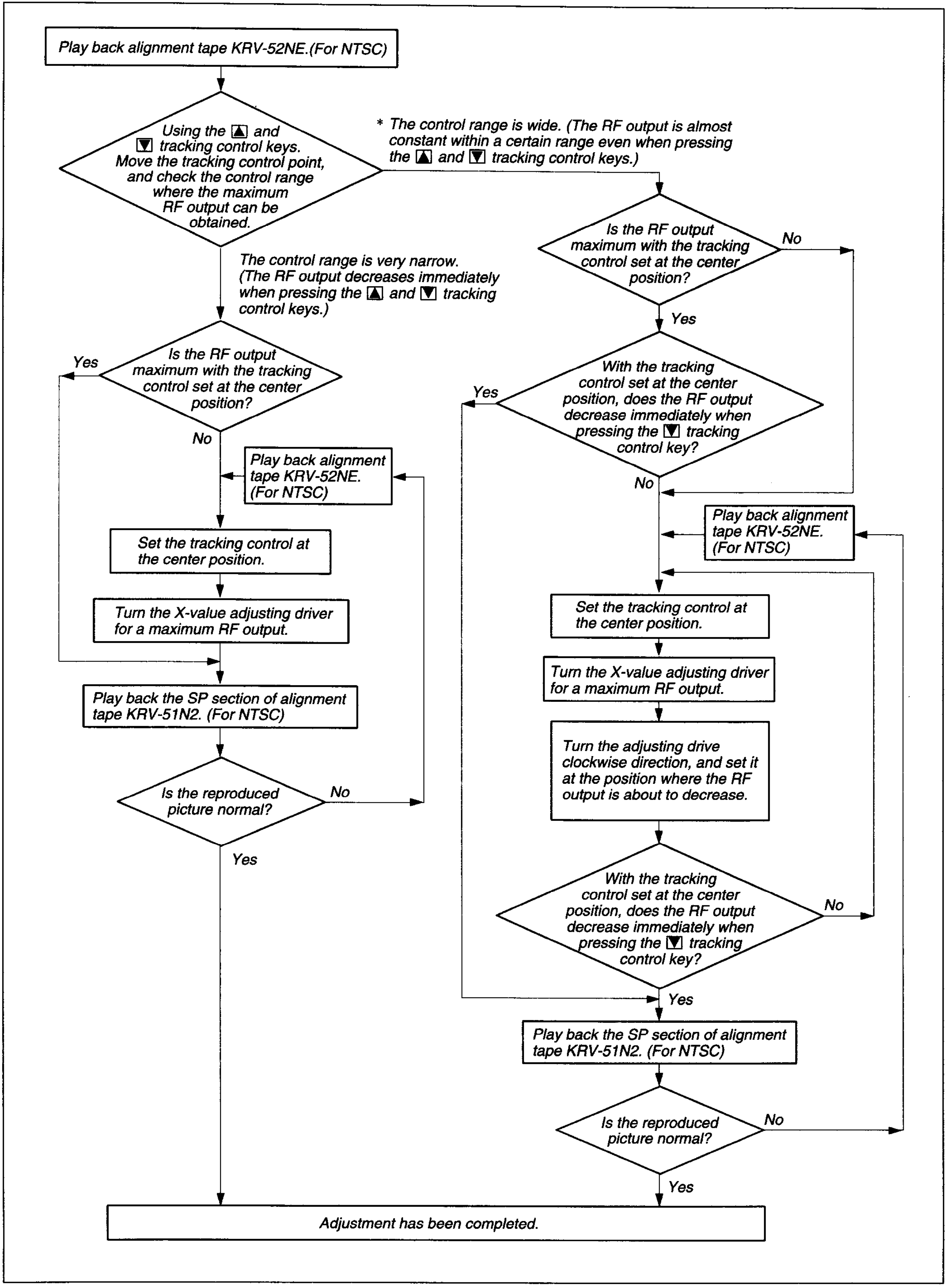

Play back alignment tape KRV-52NE.(For NTSC)
Using the ▲ and ▼ tracking control keys. Move the tracking control point, and check the control range where the maximum RF output can be obtained.
* The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF output.
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF output.
Turn the adjusting drive clockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Adjustment has been completed.

Table. 4-7

[Adjustment Method (*For the VCRs Equipped with Narrow Gap Video Heads)]

Set the tracking control at the center position. Set the ACE head position with X-value adjusting driver both where a maximum RF output is obtained and where the RF output decreases immediately when the ▲ tracking control key is pressed.

* TYPE OF DRUM
DZH-98A

Using the tape having the version No.

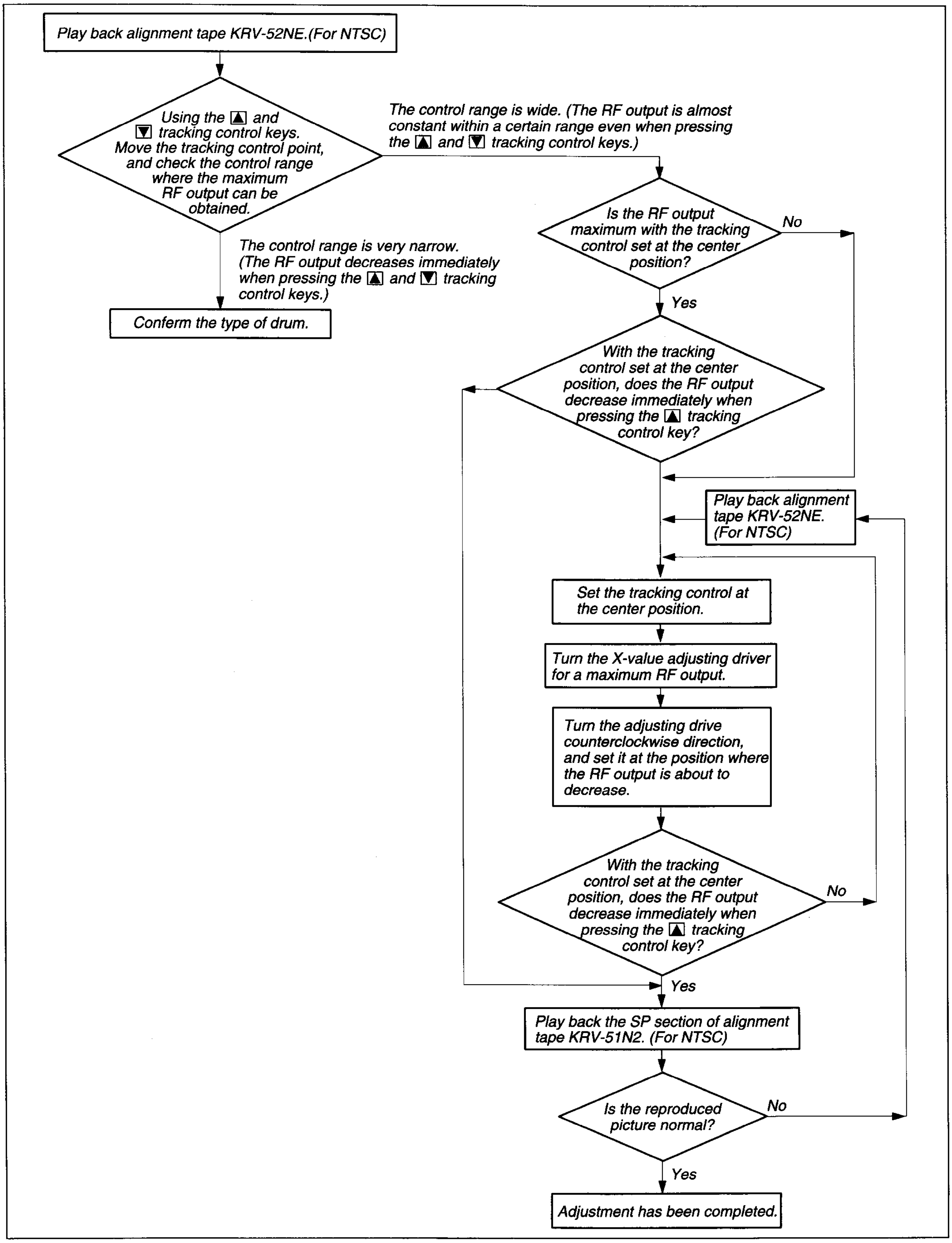

Play back alignment tape KRV-52NE.(For NTSC)
Using the ▲ and ▼ tracking control keys. Move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Conferm the type of drum.
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▲ tracking control key?
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjusting driver for a maximum RF output.
Turn the adjusting drive counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▲ tracking control key?
No
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Adjustment has been completed.

Table. 4-9

4-1-4. HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6

Mode	Playback
Signal	Alignment tape: KRV-52NE (NTSC)/52PL (PAL)
Measuring instrument	Oscilloscope TIME/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH1: Connector PB RF pin for RF PC board check CH2: Connector RF SWP pin for RF PC board check
Adjustment locations	Height adjustment screw for No. 3 tape guide roller Height adjustment screw for No. 6 tape guide roller

[Adjustment Method]

The following adjustment shall be carried out after completed Section 4-1-2. X-VALUE ADJUSTMENT.

1) Deactivate the automatic tracking control, and set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).
2) Check if the RF output changes in amplitude by pressing the tracking control key. The RF output should change periodically (changes from a minimum amplitude to a maximum amplitude, and to the minimum amplitude again).

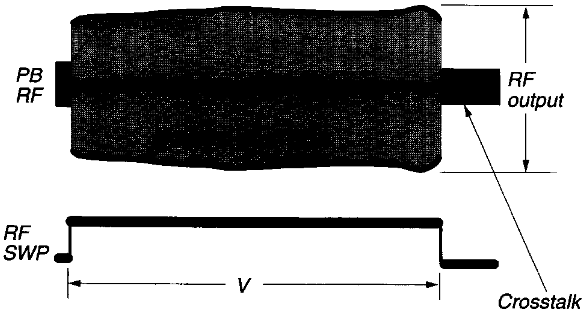
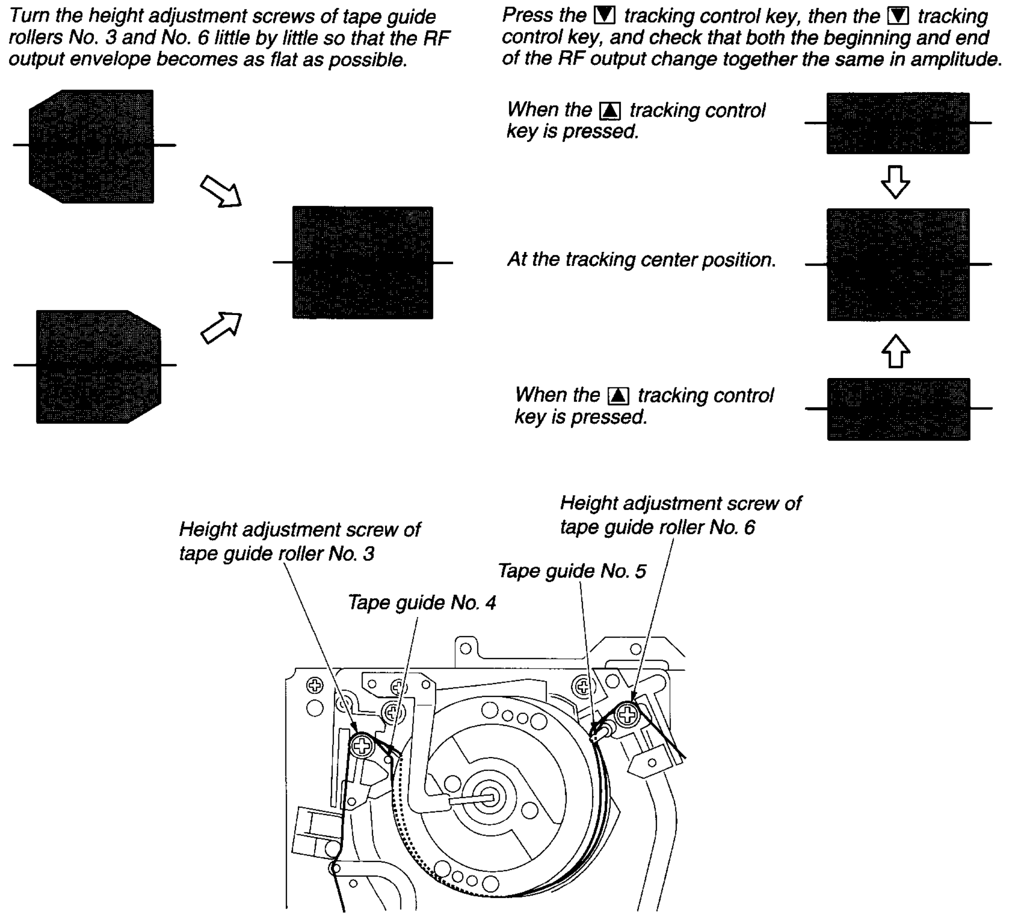


Fig. 4-4

3) Turn the height adjustment screws of tape guide rollers No. 3 and No. 6 so that the RF output envelope becomes as flat as possible.
4) Press the ▲ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.
5) Press the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.



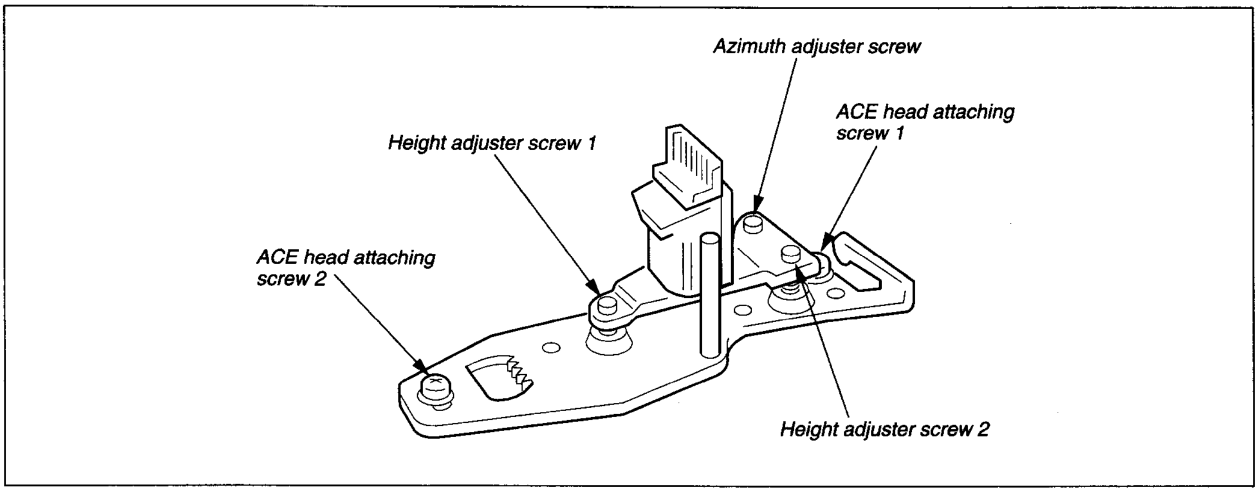
Turn the height adjustment screws of tape guide rollers No. 3 and No. 6 little by little so that the RF output envelope becomes as flat as possible.

Press the ▼ tracking control key, then the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.

When the ▲ tracking control key is pressed.
At the tracking center position.
When the ▲ tracking control key is pressed.
Height adjustment screw of tape guide roller No. 3
Tape guide No. 4
Tape guide No. 5
Height adjustment screw of tape guide roller No. 6

Fig. 4-5

4-1-5. ACE HEAD ASSEMBLY HEIGHT AND AZIMUTH ADJUSTMENT



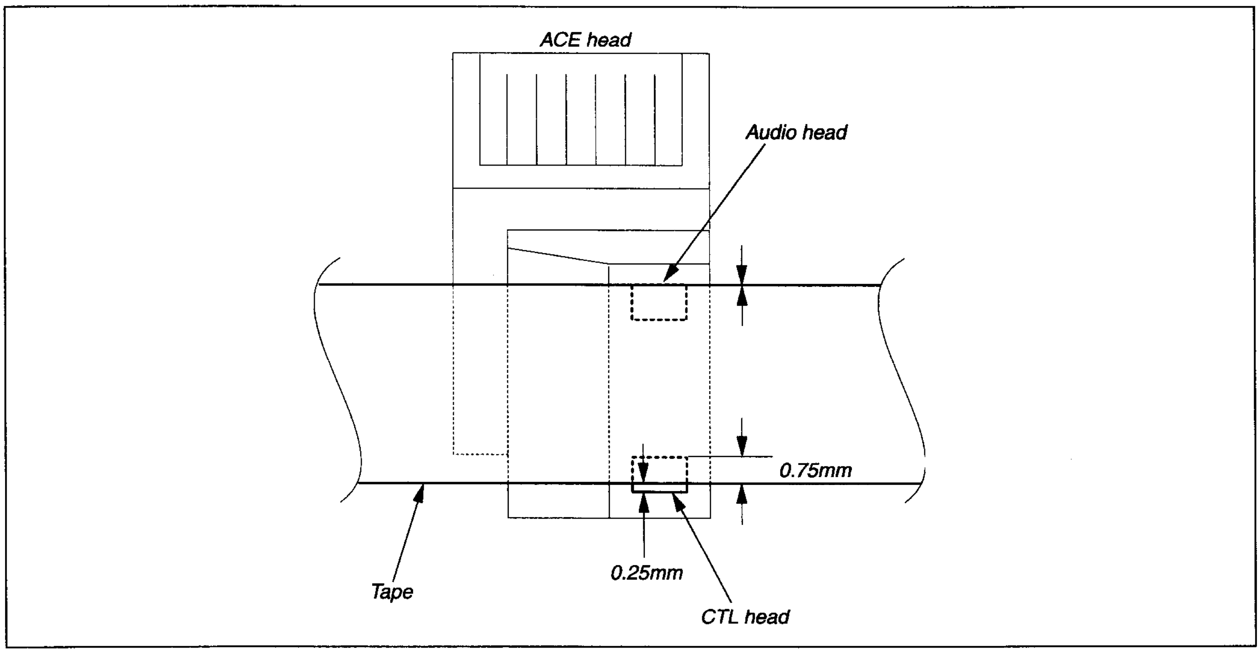
Azimuth adjuster screw
ACE head attaching screw 1
Height adjuster screw 1
ACE head attaching screw 2
Height adjuster screw 2

Fig. 4-6

Mode	Playback
Signal	Alignment tape: (5kHz) KRV-52NE (NTSC)/52PL (PAL)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw, Height adjuster screws 1 and 2.

[Adjustment Method]

1) Adjust the height as shown in the figure with turning the height adjuster screws 1 and 2, and the azimuth adjuster screw in the same direction, the same degree gradually.



ACE head
Audio head
0.75mm
0.25mm
Tape
CTL head

Fig. 4-7

2) Alternately adjust the azimuth adjuster screw to make A maximum and B minimum. (To maintain even audio output at maximum with minimum deviation.)
3) Perform section 4-1-2. X-VALUE ADJUSTMENT.
4) Tighten ACE head attaching screw 2. (Torque: More than 0.29 N•m (3.0 kg•cm)).

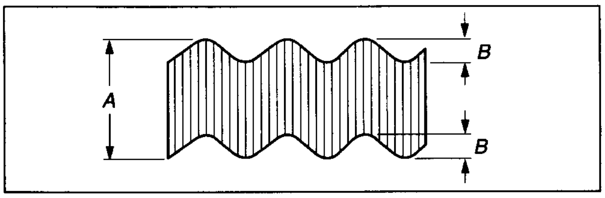


Fig. 4-8

4-1-6. X-VALUE FINE ADJUSTMENT

The procedure is the same as the item 4-1-3. Please refer to pages 37 to 46.

4-1-7. HEIGHT ADJUSTMENT OF GUIDE ROLLER NO. 8

Note : Applicable to the set having TG8 height adjusting screw as shown in the figure. Do not adjust when TG8 height adjusting screw is not attached.

Mode	Playback
Signal	Any signal on thin tape (T-160 or the like) near the tape top.
Adjustment location	TG8 height adjusting screw

[Adjustment Method]

1) Confirm there is no wrinkles of tape between TG8 and capstan and no tape curl at the upper or the lower flanges of TG8 during 10 seconds CUE running.
2) When there is curls or wrinkles, adjust with TG8 height adjusting screw.
3) Confirm there is no wrinkles of tape between TG8 and capstan and no tape curl at the upper or the lower flanges of TG8 during 8 seconds REV running.
4) When there is curls or wrinkles, adjust with TG8 height adjusting screw.

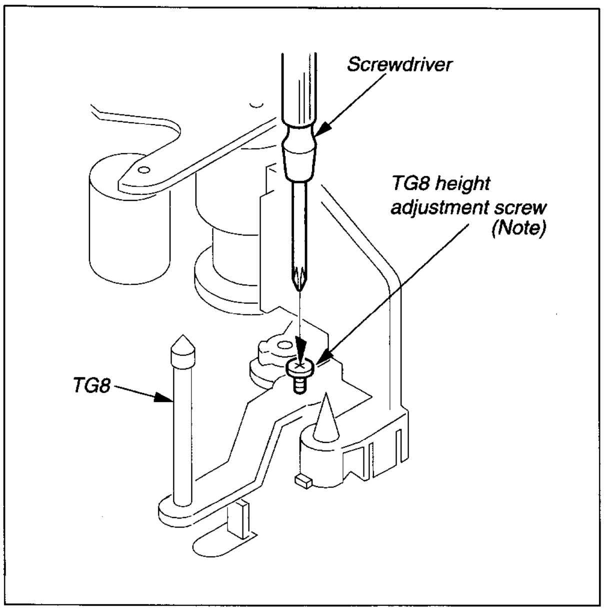


Fig. 4-9

4-1-8. CHECKING THE LINEARITY AND FLUCTUATION OF THE RF OUTPUT

1) Set the RF output to the maximum level using the tracking buttons.

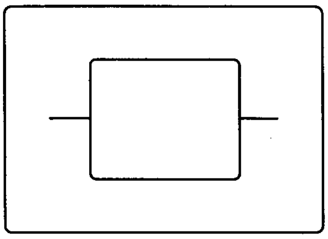


Fig. 4-10-1

2) Perform fine adjustment of the voltage level range of the oscilloscope, adjust the RF output deviation to within 6 gradations.

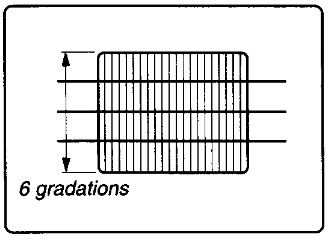


Fig. 4-10-2

3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 4 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.

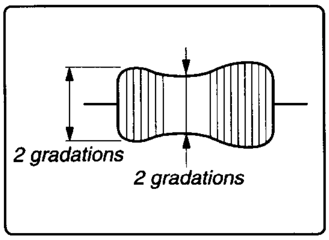


Fig. 4-10-3

5) Check that RF output fluctuation between minimum and maximum levels is within 13%.

5. EXPLODED VIEWS

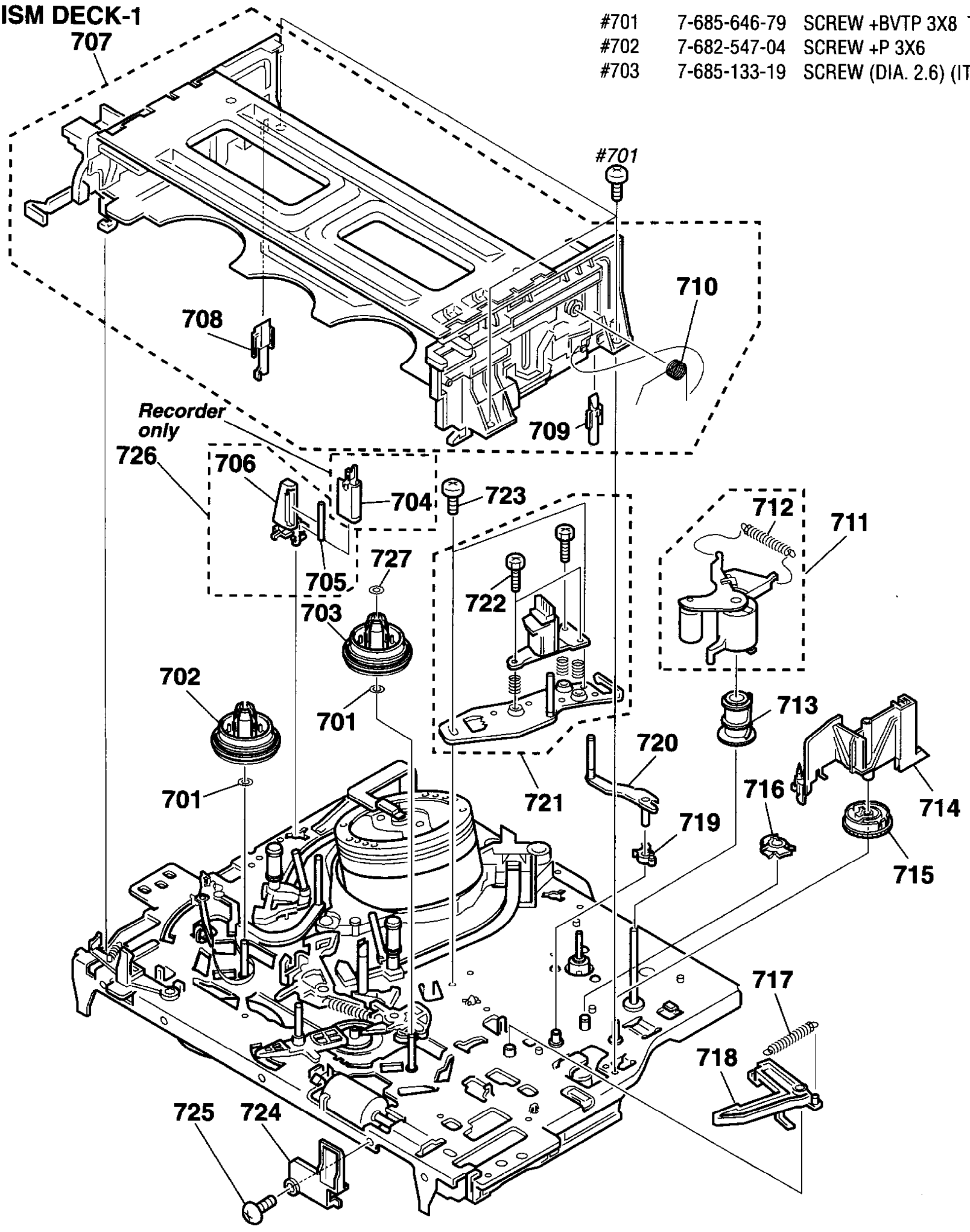
Note:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

****
HARDWARE LIST
****

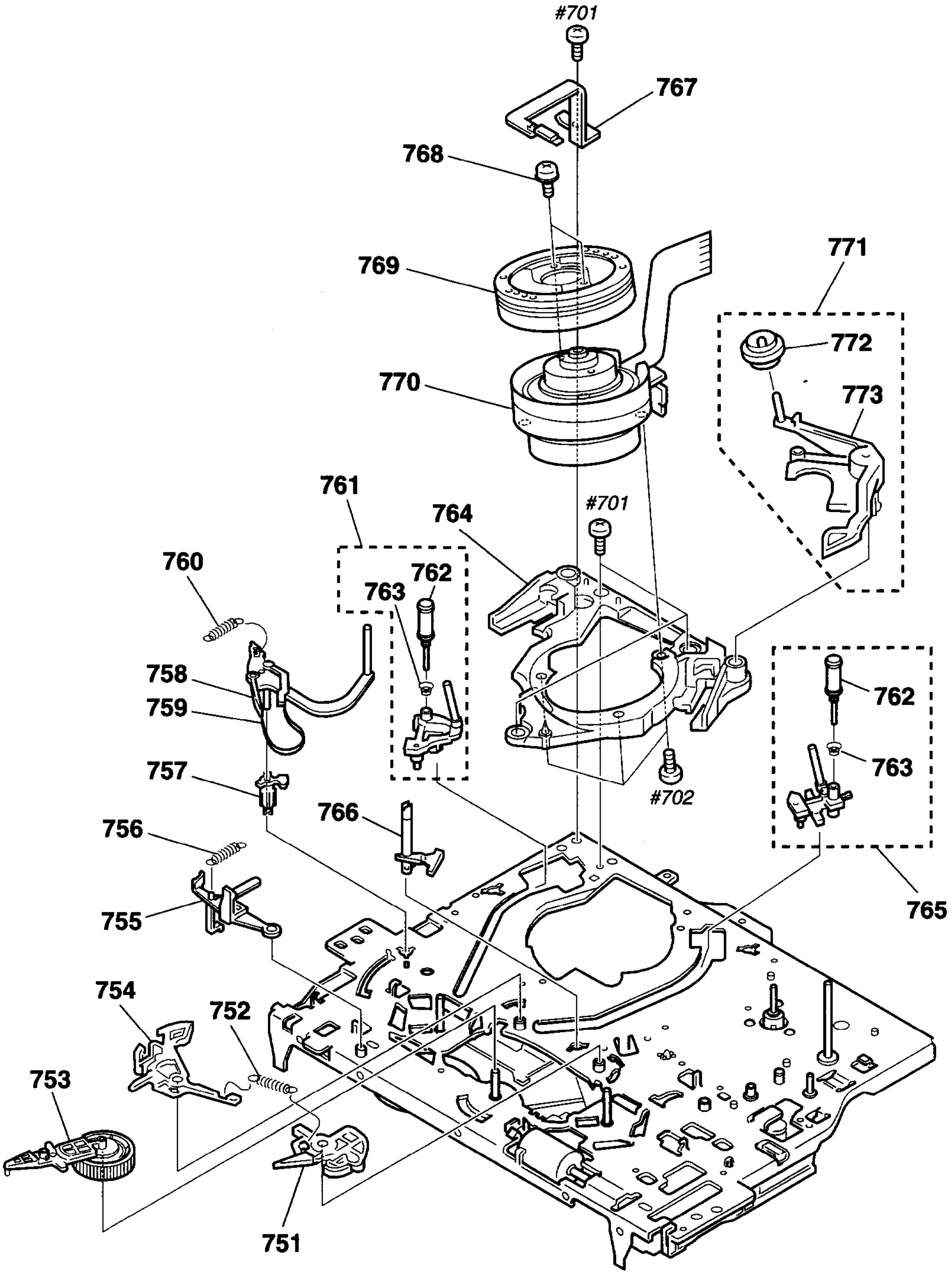
#701	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3
#702	7-682-547-04	SCREW +P 3X6
#703	7-685-133-19	SCREW (DIA. 2.6) (IT3B)

5-1. MECHANISM DECK-1



Ref. No.	Part No.	Description	Remarks
701	3-977-509-01	WASHER, THRUST	
702	3-977-507-01	TABLE, REEL (S) (GRAY)	
703	3-977-508-01	TABLE, REEL (T) (BLACK)	
704	1-500-144-11	HEAD, FE (RECORDER)	
705	3-977-495-01	SHAFT TG2 (RECORDER)	
706	3-977-494-01	HOLDER, FEH (RECORDER)	
707	A-6759-619-A	FL COMPLETE ASSY BOARD, COMPLETE	
708	3-977-535-01	PLATE, LUMINOUS(END SENSOR)	
709	3-977-536-01	PLATE, LUMINOUS(TOP SENSOR)	
710	3-970-471-01	SPRING (DECK OPEN), TORSION	
711	A-6759-615-A	PRESS BLOCK ASSY, PINCH	
712	3-958-455-01	SPRING (PINCH), TENSION	
713	3-977-447-01	GEAR, ELEVATOR	
714	3-977-514-01	OPENER, LID	
715	3-977-441-01	GEAR, PINCH PRESSING	
716	3-977-445-01	GEAR, TG8 ARM DRIVING	
717	3-977-465-01	SPRING,EXTENSION(RVS BRAKE)	
718	X-3947-582-1	ARM ASSY, RVS BRAKE	
719	3-977-446-01	GEAR, TG8 ARM	
720	X-3947-590-1	TG8 ASSY	
721	A-6759-620-A	HEAD BLOCK ASSY, ACE (TDK)	
722	3-974-556-01	+ HEXA TT 2.6X9 (TAPER)	
723	3-979-508-01	SCREW	
724	3-978-485-01	PLATE, GUIDE CASSETTE	
725	3-696-519-01	+P IT3 SCREW 3X8	
726	X-3947-817-1	FEH, ASSY (PLAYER)	
727	3-977-443-01	WASHER, STOPPER	

5-2. MECHANISM DECK-2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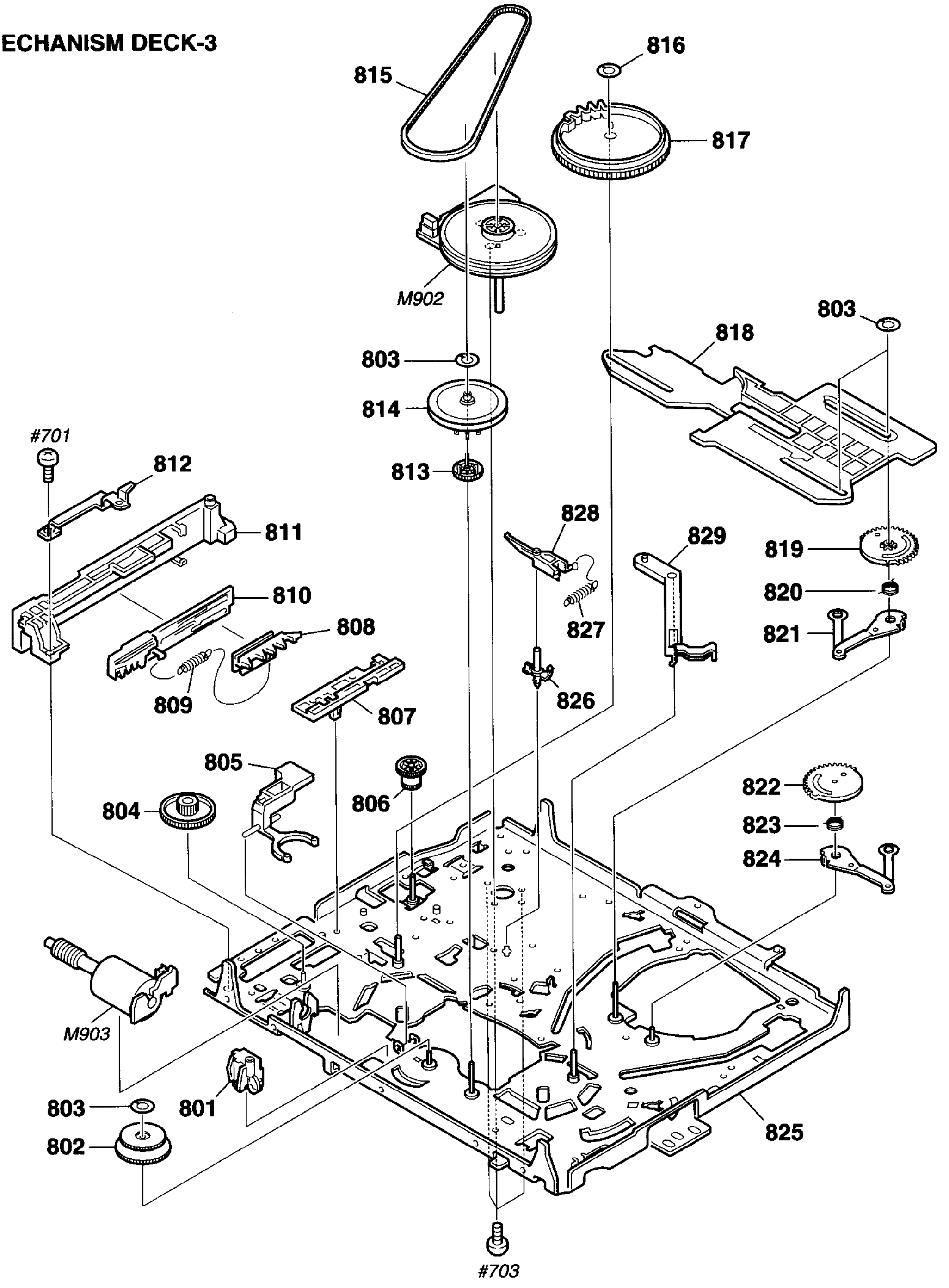
Ref. No.	Part No.	Description	Remarks
751	X-3947-581-1	BRAKE ASSY,MAIN(T)	
752	3-977-462-01	SPRING,EXTENTION. (MAIN BRAKE)	
753	X-3947-573-1	ARM ASSY, PENDULUM	
754	X-3947-580-1	BRAKE ASSY, MAIN(S)	
755	3-977-513-01	LEVER, REC. PROOF	
756	3-976-767-01	SPRING, TENS. (REC. PROOF)	
757	3-977-487-01	BOSS, TG1 FULCRUM	
758	X-3947-587-1	TG1 ASSY	
759	X-3947-589-1	BAND ASSY, TG1	
760	3-977-488-01	SPRING (POWER TENSION)	
761	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
762	X-3944-378-1	ROLLER ASSY, GUIDE	

Ref. No.	Part No.	Description	Remarks
763	3-965-178-01	SPRING	
764	3-969-629-01	BASE, DRUM	
765	A-6750-325-A	SHUTTLE (T) BLOCK ASSY	
766	3-977-501-01	PLATE, LUMINOUS	
767	X-3943-899-8	GROUND ASSY, SHAFT	
768	2-643-205-01	SCREW	
769	Refer to the service manual for each model.		
770	Refer to the service manual for each model.		
771	A-6759-614-A	ROLLER BLOCK ASSY, HC	
772	X-3947-255-1	ROLLER ASSY, HC	
773	3-977-537-01	ARM, HC ROLLER	

5-3. MECHANISM DECK-3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Ref. No.	Part No.	Description	Remarks
* 801	3-977-437-01	RETAINER,CAM MOTOR	
802	X-3947-584-1	ASSY, REEL DIRECT	
803	3-977-443-01	WASHER, STOPPER	
804	3-977-438-01	WORM - WHEEL	
805	3-977-506-01	ARM, LIMITTER SELECTION	
806	3-977-444-01	GEAR, PINCH TRANSMISSION	
807	3-977-515-01	GUIDE, FL SLIDER	
808	3-977-517-01	PLATE, SLIDE, FL	
809	3-977-519-01	SPRING, TENS. (LIMIT, FL)	
810	3-977-518-01	PLATE, LIMITTER, FL	
811	3-977-516-01	HOLDER, FL SLIDER	
812	3-977-877-01	PLATE, RETAINER	
813	3-977-504-01	GEAR, CLUTCH	
814	X-3947-585-1	GEAR ASSY, PULLEY	
815	3-977-510-01	BELT, RUBBER	
816	3-977-440-01	WASHER, STOPPER	
817	3-977-439-01	GEAR, CAM	
818	3-977-442-01	SLIDER	
819	3-977-455-01	GEAR, LOADING(T)	
820	3-977-456-01	SPRING, TORSION (LOAD T)	
821	X-3947-579-1	LEVER ASSY, LOADING(T)	
822	3-977-451-01	GEAR, LOADING(S)	
823	3-977-452-01	SPRING, TORSION (LOAD S)	
824	X-3947-578-1	LEVER ASSY, LOADING(S)	
825	X-3947-576-1	CHASSIS ASSY, MECHANICAL	
826	3-977-468-01	SHAFT, CAPSTAN BRAKE	
827	3-977-467-01	SPRING, CAP BRAKE	
828	X-3947-583-1	BRAKE ASSY, CAPSTAN	
829	3-977-489-01	ARM, TG1 DRIVING	
M902	1-698-971-11	MOTOR, DC	
M903	X-3947-577-1	MOTOR ASSY, CAM	

VHS MECHANICAL ADJUSTMENT MANUAL Ⅵ

9-921-647-13
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Home A&V Products Company

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